Special Issue
Journal of General Studies ESUT ISSN: 1115-6767, E-ISSN: 2971-6241 **Vol. 7 No. 2, 2025**

EFFECTIVENESS OF COMMUNITY-BASED CONTROLLED PROGRAMMES FOR MALARIA REDUCTION AND IMPROVING HEALTH OUTCOMES IN ABA SOUTH LGA OF ABIA STATE

[1]Ikechukwu Stephen Nwobodo, [2]Mba Cornelius & [3]Ozobu Amaka
[1]Department of Human Kinetics and Health Education, Faculty of Education, Enugu State University of Science and Technology (ESUT), Enugu. +234 8066690691
[2&3.]Philosophy Unit, General Studies Division. Enugu State University of Science and Technology, (ESUT) Agbani, Enugu. +234 8063445911

Abstract
This study evaluated the effectiveness of community-based control programs in decreasing malaria incidence and enhancing health outcomes in Aba South LGA, Abia State. The adopted design format was quasi-experimental, involving two groups. The study population comprised 1,153 households from 16 electoral wards that participated in the regular health education program for the free distribution of insecticide-treated bed nets at the government health centre in the locality The effectiveness of malaria control measures and the incidence ratio were assessed at both pre-test and post-test within the experimental and control groups. Each participant underwent screening for malaria parasites, and the results from the pre-test were documented. The intervention group received insecticide-treated nets and instruction on the installation of door, window and vent nets in their residences. Over a two-month period, the researcher and assistants conducted monthly follow-up visits to each household to evaluate the respondents' adherence to the preventive methods provided during the instructional phase. During the follow-up visits, participants received counselling and were encouraged to visit the health centre for clinical evaluation, laboratory confirmation and treatment at no cost. After 8 weeks, both groups underwent post-testing for malaria parasites to determine the incidence ratio, which was subsequently recorded. Data were analysed utilizing mean and standard deviation

Key words: Community, Effective, Incidence, Malaria, Programme.

Introduction
Malaria is a significant health issue affecting individuals of all ages across various communities, leading to detrimental health outcomes. Consequently, addressing this disease should be a priority within the health sector. The World Health Organization (WHO) (2013) indicates that malaria presents diagnostic and treatment challenges due to symptoms; such as fever, headache, myalgia, abdominal pain, vomiting and dizziness. The features and classifications of malaria; such as choleric, algid and neurological black water malaria, may be misidentified as other diseases (Kyabayinze Achan, Nakanjako, Mpeka, Mawejje & Mugizi, 2018; World Health Organization (WHO), 2013). Malaria poses a significant global concern that is particularly highlighted by the WHO, due to its profound socio-economic health impacts; especially among pregnant women and children under five years of age. In 2020, there were 207 million cases of malaria worldwide, resulting in over 700,000 deaths, predominantly among children under five years of age (WHO 2020). In 2020, WHO even identified 104 countries where malaria infection is endemic.

The initiatives by WHO and other health organizations to manage endemic diseases; such as malaria resulted in the adoption of the Alma-Ata Declaration in 1978, followed by the Roll Back Malaria program in subsequent years. Consequently, community health workers in Nigeria undertook significant efforts to control malaria through the treatment of populations in rural health

institutions (Obionu 2014; Marycilian, Amika, Maria, Andreas, Karin & Maxa, 2015). The therapeutic management of malaria proved largely ineffective in both rural and urban settings. In reference to this, Eke (2021) observed significant malaria resistance to quinine, chloroquine and sulphur combination drugs. Supporting Eke's observation, WHO (2021) recommended Artesunate combined therapy (ACT) as the preferred treatment for malaria. Eke, Chigbu, & Nwachukwu, (2022) and McGready, Wongsaen, and Chu (2014) observed a high rate of asymptomatic Plasmodium infection in the studied endemic areas and recommended the adoption of preventive measures, including the cessation of mosquito bites. Eke (2019) further recommended employing multiple malaria control measures; including therapeutic interventions, health education, environmental control and the use of insecticide-treated bed nets, as well as covering all potential openings such as doors, vents and windows. Yet, empirical evidence seems to show that therapeutic control is not an effective option for control measures due to the presence of individuals with asymptomatic infections. This means that therapeutic control must be periodically renewed due to the malaria parasite's resistance to drugs while health education will require adherence to various control measures.

Achieving this compliance is challenging (Petti, Polage, Quinn, Ronald & Sande. 2016; Birx, de Suza & Nkenagasong 2019; Uchechukwu and Ikechukwu 2014). Similarly, achieving environmental control is also challenging due to the various measures that must be implemented; such as preventing stagnant water in containers like potholes, cans, discarded tires, and others. Additionally, mosquitoes are observed to fly to and from the premises (Eke 2019; Price; Douglas & Anstey 2019). The insecticide-treated bed nets have inherent issues too. Mosquitoes may enter and bite the home owners prior to the lowering of the mosquito nets. In that regard, it has been suggested that constant and careful control is necessary to ensure that the nets remain intact to prevent mosquito entry before sleeping under the net (Uchechukwu, et al. 2014; Poespoprodjo, Fobia, and Kenangalem 2014).

Despite significant efforts to control malaria, WHO (2020) AFRO Region which accounts for 92% of the 219 million malaria related cases and 93% of the 435,000 global malaria related deaths noted that Africa bears the highest burden. Congruently, the National Population Commission (2018) observes that a significant portion of the vulnerable population at risk of malaria—specifically pregnant women and children under five—remains unprotected in the South East geopolitical zone, including Abia State. This suggests that meaningful progress in malaria control is unattainable without full community involvement, especially as no single program can effectively address the issue. This implies that the community-based controlled programmes against malaria by the inhabitants of Aba South LGA in Abia State are among the outstanding malaria control measures within human communities.

The encouragement of favourable behaviours and community-based controlled programmes for malaria prevention and treatment at the community, household and individual levels in Aba south thus aligns with the goals of the National Malaria Strategic Plan 2014-2020 (Federal Ministry of Health, 2013). Malaria control initiatives in Aba south, and broadly Abia State, via the Integrated Community Case Management (ICCM) Programme, emphasize the training of Community-Oriented Resource Persons (CORPs) to deliver malaria diagnosis and treatment in remote areas; thereby enhancing accessibility for young children. These programs encompass community

mobilization by leaders, sensitization activities and proactive identification of ill children; thereby enhancing the utilization of care and acceptance of services. Efforts of this programme also concentrate on enhancing community awareness and practices concerning malaria prevention and treatment (Federal Ministry of Health, 2013). Thus, these primary programs and initiatives encompass Community Mobilization, Social Mobilization and Malaria Rapid Access Expansion (RAcE) Programme / iCCM.

The Malaria Rapid Access Expansion (RAcE) Programme/iCCM provides training for community resource persons (CORPs) across 15 of the 17 Local Government Areas (LGAs) in Abia State, focusing on the management of prevalent childhood illnesses, such as malaria. CORPs is provided with training, transport incentives and oversight from Community Health Extension Workers (CHEWs). The scope of RAcE extends to Aba South which has been identified as a local government for the implementation of malaria control measures within the state. Yet, the effectiveness of RAcE/ICCM in malaria prevention and control measures in various communities as well as social mobilization for malaria prevention in Aba south LGA has not been adequately verified. This Community Mobilization strategy in Aba South engages diverse groups, such as women's organizations, religious institutions and traditional leaders to foster an environment conducive to malaria control. The activities replete in this social mobilization also encompass advocacy visits, dialogue and community sensitization aimed at enhancing demand for services and fostering acceptance of interventions; such as ICCM.

Contextually therefore, the Social Mobilization technique for malaria prevention in Aba south entails engaging community leaders and employing simple language in sensitization exercises to elucidate the program and its significance to caregivers. It also entails bi-monthly sensitization in rural regions. This technique involves CORPs engaging in proactive community outreach to detect ill children and deliver services. Driving this social mobilization in Aba south also are Health Reform Foundation of Nigeria (HERFON) and the Christian Health Association of Nigeria (CHAN). These groups promote community awareness and mobilization to augment demand for malaria services and improve community-level initiatives. Additionally, advocacy visits to officials and community leaders are being are being carried out by these groupss to get support for malaria programs.

These efforts notwithstanding, the effectiveness of these community based efforts; health promotion and malaria prevention techniques in Aba south LGA has to be formally determined. The necessity of this assessment lies in the fact that control measures possesses limitations; hence the efficacy of community-based malaria control programmes surmounts implementation of controlled strategies; therapeutic interventions, health education, environmental management, utilization of insecticide-treated mosquito bed nets and sealing of potential mosquito entry points (Eke, 2019). This study therefore burdens the task of assessing the effectiveness of community based controlled strategies for malaria reduction and improving health outcomes in Aba LGA of Abia state. This is with the aim of exploring other experiences of community resource persons in malaria control and health improvement in Aba south LGA of Abia State.

Statement of the Problem

The World Health Organization has long classified malaria as a significant public health concern; implying that citizens in various regions familiarize themselves with malaria control programs and regulations. This is due to the fact that malaria symptoms can occasionally be silent, potentially leading to complications and abrupt death if not discovered promptly. Since most recommended control measures are not universally effective, residents of diverse communities in Aba South LGA are expected to evolve and implement community-based malaria control initiatives to reduce or entirely eliminate malaria among both children and adults in the area. Consequently, the Abia State Government has implemented several community-based programmes; including ICCM and social methods to educate communities in Aba South LGA on the necessity of compliance to prevent disease conditions. Despite these efforts, there are increasing instances of malaria at the various health centres within Aba south LGA. This condition necessitates the critical determination of these community based malaria control measures and reasons for the increasing rate of malaria among the inhabitants of Aba south LGA of Abia State.

Purpose of the Study

This study aims to assess the efficacy of community-based control programs in mitigating malaria in Aba South LGA of Abia State. The specific objectives are to ascertain the;

1. effect of community-based programmes in the control of malaria on the experimental group and the control group at pretest and posttest in Aba South LGA.
2. effect of community-based programmes on incidence ratio of malaria among the experimental and control groups at pretest and posttest.

Research Questions

1. What is the effect of community-based programmes in the control of malaria on the experimental group and the control group at pretest and posttest in Aba South LGA?.
2. What is the effect community-based programmes on incidence of malaria on the experimental group and the control group at pretest and posttest?.

Method

The study adopted a quasi-experimental framework that involves two groups: one designated for intervention and the other serving as a control. The study population comprised 1,153 households from 16 electoral wards that participated in the routine health education program for the complimentary distribution of insecticide-treated bed nets (ITNs) at the government health centre in the study area. A total of 120 homes from 4 of the 16 wards in the area were randomly selected as research participants using a rule of thumb sampling method. The households were randomly assigned to two groups: the experimental group and the control group. In the experimental group, 80 households were sampled, whereas the control group comprised 40 houses. The experimental group engaged in Health Education instruction, implemented environmental measures, and employed insecticide-treated bed nets, whereas the control group did not utilize insecticide-treated bed nets or any mosquito control measures, but received only health education from community resource personnel. The intervention group received health education instructions on community-based control programmes in mitigating malaria insecticide-treated bed nets and had nets installed on their doors, windows and vents. Additionally, they were required to adopt alternative mosquito prevention strategies in their residences and commercial establishments. Conversely, the control

group solely got Health Education instructions but did not have insecticide treated nets installed on their doors, windows and vents. The efficacy of the malaria control interventions and the incidence ratio were assessed at both pre-test and post-test within the experimental and control groups.

Experimental Procedure

The 8-week study involved 120 households, comprising 80 in the experimental group and 40 in the control group. Both the experimental and control groups received instruction on health education measures pertaining to the numerous processes involved in the utilization of insecticide-treated bed nets, door netting, window netting, and vent netting. Additionally, alternative methods for combating mosquitoes were instructed. Subsequently, each participant was checked for malaria parasites, and the pre-test findings were documented. The intervention group received ITNs and instruction on the installation of door, window, and vent nets in their residences. Throughout the trial, the researcher and assistants dedicated one month to conducting home visits to educate the population about their anticipated roles and duties in malaria management. Furthermore, the researcher and the assistants emphasized the necessity of ensuring that the beds in the intervention group were sufficiently netted. Subsequently, on a monthly basis, for the duration of two months, the researcher and assistants conducted follow-up visits to each household sampled in Aba South LGA. The follow-up visits aimed to determine the degree of compliance by the respondents with the preventive measures instructed during the educational phase. During the follow-up visits, participants received counselling and were encouraged to visit the health centre for clinical examination, laboratory confirmation, and treatment at no cost. The monthly records indicated the number of sampled individuals who tested positive for the malaria parasite in Aba South LGA. The interactive monthly follow-up visits were conducted once per month. The researcher and the assistants conducted two visits throughout the study period. Upon the conclusion of 8 weeks, both groups had post-testing for malaria parasites to determine the incidence ratio, which was subsequently documented. The data were examined utilizing the mean and standard deviation.

Results

Research Question 1: What is the effect of community-based programmes in the control of malaria on the experimental group and the control group at pretest and posttest in Aba South LGA.

Variable	Test	n	Mean (x)	SD	X Gain	Dec
Achvmt	C-B prgm					
	Pretest	80	19.91	5.137		
	Posttest		27.73	4.301		
					4.26	HA
	Contr Gp					
Pretest		40	18.32	5.209		
	Posttest		23.47	6.419		LA

Key: C-B Prgm-Community-Based progm. Contr Gp. High Achievement. LA-Low Achievement.

The data in Table 1 indicates that the mean achievement of participants that received the community-based health education program at pretest is 19.91 (SD = 5.137), whereas the posttest score is 27.73 (SD = 4.301). The control group, which received no training, had a mean score of 18.32 (SD 5.209) at the pretest and 23.47 (SD 6.419) at the posttest. The average difference between the experimental group and the control group is 4.26 (27.73-23.47). This indicates high achievement. This means that the participants that received community-based health education program has higher achievement than the group that did not receive any instruction. Therefore, community-based health education program is effective in malaria control measures in Aba South LGA.

Research Question Two: What is the effect community-based programme on incidence of malaria on the experimental group and the control group at pretest and posttest?

Table 2: Mean and SD Differences of the Respondents Exposed to Community-Based Programmes in Reducing Malaria and their counterparts not exposed to it on the incidence of malaria at pretest and posttest.

Variable	Test	n	Mean (x)	SD	X Gain	Dec
Incidence	C-B prgm					
	Pretest	80	20.41	3.211		
	Posttest		17.11	4.301		LI
					3.03	
	Contr Gp					
Pretest		40	19.53	1.301		
	Posttest		20.14	1.212		HI

Key: C-B Prgm-Community-Based progm. Contr Gp- Control Group. LI-Low Incidence. HI- High Incidence.

The data in Table 2 indicate that the mean incidence for participants instructed through the community-based health education program at pre-test is 20.41 (SD = 3.211), whereas the posttest score is 17.11 (SD = 4.301). The control group that received no instruction had a mean incidence score of 19.53 (SD = 1.301) at pre-test and 20.14 (SD = 1.212) at post-test. The mean difference between the experimental group and the control group is 3.03 (20.14 - 17.11). This indicates high achievement. This means that the participants that received community-based health education program has lower incidence malaria ratio than the group that did not receive any instruction. Therefore, community-based Health Education programm effectively reduces the malaria incidence ratio in Aba South LGA.

Discussion

The study's findings indicate that a community-based health education program is effective in malaria control measures in Aba South LGA. This finding aligns with the recommendations of Eke et al. (2022) and McGready, Wongsaen, and Chu (2014), concerning malaria control in endemic regions, particularly the prevention of mosquito bites. The findings also align with Eke (2019), which recommended the implementation of various malaria control measures, including therapeutic interventions, health education, environmental control, and the use of insecticide-treated bed nets, as well as the sealing of potential entry points such as doors, vents, and windows. The health advocacy efforts in the communities of Aba South LGA may be adversely affecting the local population, as evidenced during the community-based health education programs aimed at malaria control. Some individuals may have become acquainted with the state government's community-based programs for malaria control.

This study finds that the community-based Health Education program effectively reduces the malaria incidence ratio in Aba South LGA. The finding did not aligns with the caution expressed by the National Malaria Elimination Programme (2015) and the World Health Organization (2020), which states that despite significant efforts to control malaria, the incidence ratio remains elevated in many communities throughout African regions. The study group demonstrated a reduction in malaria incidence over the past four months, indicating that respondents likely implemented necessary precautionary measures against mosquito bites, in contrast to their actions prior to the interventions. The high malaria incidence ratio observed in the control group at post-test indicates that health education alongside with others are ineffective for malaria control.

Conclusion

From the findings as presented, the study concluded that community-based Health Education programme have proven to be is effective in malaria control measures. Furthermore, community-based Health Education programme effectively reduces the malaria incidence ratio in endemic areas hence there is need to sustain the policy programmes and policies in both urban and rural settings.

Recommendations

Based on the findings of this study, the following are recommended:

1. Government should implement regular and mandatory environmental clean-up programmes to mitigate mosquito breeding and the transmission of malaria parasites in Aba south LGA.

2. Regular seminars and workshops should be organized to emphasize the advantages of ongoing implementation of malaria control measures in the communities of Aba South LGA.
3. Health care authorities in Aba south local health centres should consistently offer reliable diagnostic facilities and treatment and encourage community members to engage in local programmes aimed at malaria control.

References

Bhutta, Z. A, Ali S, Cousens S, Ali T. M, Haider, B. A, Rizvi, A, Okong, P, Bhutta, S. Z, & Black, R. E. (2018). Alma-Ata: Rebirth and Revision 6 Interventions to address maternal, newborn, and child survival: what difference can integrated primary health care strategies make? *Lancet. 2018* Sep 13;372(9642):972–89.

Birx D; de Suza M, Nkenagasong J. N (2019). Laboratory challenges in the scaling up of HIV, TB and malaria programs: the interaction of health and laboratory systems, clinical research and service delivery. *AM Jclin Pathol*; 131:849 -851

Eke R.A. (2019). Possible Chloroquine – Resistant Plasmodium Falciparum in Nigeria. *American Journal of Tropical Medicine and hygiene* 28(6), pp 1074 – 2075.

Eke R.A, Ijeoma N., Kenechi A.U. & Chima C.O.E (2022). Accurancy of clinical Diagnosis of Malaria by health workers in a rural community in Abia State. Research journal of public health. 4(1);/20-35.

Eke, R. A. Chigbu, L. N. & Nwachukwu, N. (2016). High Prevalence of Asymptomatic plasmodium infection in a suburb of ABA Town, *Nigeria Annals of African Medicine.* 5(1); 42-45

Federal Ministry of Health, (2013). NMCP Nigeria National Malaria Strategic Plan. Abuja, 2013.

Kyabayinze, D.J, Achan, J, Nakanjako, D, Mpeka, B, Mawejje, H, & Mugizi, R. (2018). Parasite – based malaria diagnosis; are health systems in Uganda equipped enough to implement the policy? *BMC public Health 2018*; 12:695-706.

Marycilian, M., Amika, J., Maria, W., Andreas, M., Karin, K. & Maxa, P. (2015). Malaria Rapid Testing by Community Health Workers is effective and safe for Targeting malaria Treatment: randomized cross-over Trial in Tanzania. *PLoS ONE*; 6(7): e19753, doi: 10.1371 / journal. 0019753.

McGready, R, Wongsaen K, Chu C.S. (2014). Uncomplicated Plasmodium vivax malaria in pregnancy associated with mortality from acute respiratory distress syndrome. Malar J.; 13:191.

National Malaria Elimination Programme, (2015). Nigeria Malaria Indicator Survey (MIS), 2015. Abuja Nigeria.

National Population Commission, (2018). ICF Nigeria Demographic and Health Survey 2018 Key Indicators Report. Abuja.

Obionu, C.N. (2014). Primary Health Care for developing countries Delta publication (Nig.) limited 3rd reprint; 45-54.

Petti, C. A, Polage, C. R, Quinn T. C, Ronald, A. R, & Sande, M.A. (2016). laboratory medicine in African barrier to effective health care. Clin infect Dis 2; 42:377-382.

Poespoprodjo, J. R, Fobia, W. Kenangalem E. (2014). Dihydroartemisinin-piperaquine treatment of multidrug resistant falciparum and vivax malaria in pregnancy. *PLoS One*. 9:e84976.

Uchechukwu, M.C. & Ikechukwu, N. (2014). Malaria transmission and morbidity patterns in hollow endemic areas of Imo River Basin of Nigeria. *BMC Research notes*; 4:514.

WHO (2020). Malaria Microscopy Quality Assurance Manual Version.1.

WHO (2021). Guidelines for the Treatment of Malaria

WHO (2021). World malaria report. World Health Organization Geneva-edition-Geneva.

WHO. (2022) Malaria Policy Advisory Committee and Secretariate Malaria Policy Advisory Committee to the WHO: