

Assessment of Marketing Communications for the Prevention and Control of Malaria in Nigeria

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Abstract

The study was on a critical assessment of marketing communications for the prevention and control of malaria in Nigeria. It was conceived by the desire to identify the effectiveness of marketing communication as a tool for the prevention and control of malaria which kills thousands of innocent Nigerians every year. To objectives were to: determine the extent marketing communication tools helped create awareness on the malaria prevention and control programme in Nigeria; and ascertain the relationship between the marketing communication-mix employed and the reduction in the rate of malaria morbidity and mortality in the country. Survey research design was adopted for the study, where structured questionnaire was the instrument used in data sourcing. Data were analyzed using simple percentage and independent t-test. Results revealed that the use of marketing communication helped create awareness on the prevention and control of malaria and that the use of marketing communications has also reduced malaria related deaths in the country. Based on the findings, it was recommended among other things that research-based marketing communications, founded on people's culture and tradition should be used more in the health marketing campaigns against malaria in the country.

Keywords: Malaria, Prevention, Health Marketing, Marketing Communication.

1. Introduction

“Health is wealth” is a popular maxim around the world. Parallel with this phrase is, “healthy citizens make a healthy nation and a healthy nation makes a developed nation. Therefore, for any nation to reckoned with, it must ensure quality health condition for its citizens. In Nigeria, one of the most endemic diseases is malaria. Malaria, which is caused by the parasite of the genus plasmodium, is one of the most serious diseases that affect people in developing countries especially in tropical and subtropical regions reports the US Centers for Disease Control and Prevention (CDC.gov, 2016). It has caused 10 percent of death and 5 percent of maternal deaths, and remains a global health problem of monumental concern (WHO, 2016).

However, to stem the tide posed by malaria in Nigeria, the Federal, State and Local Government in collaborations or with the support of regional and international organizations have designed programmes and activities, aimed at controlling and preventing the disease in the country. Some of these malaria control and prevention programmes include: health education, health promotion, use of insecticide, proper personal and environmental sanitation, good impact assessment before building, proper drainage system and the use of Long Lasting Insecticide-Treated Nets (LLIN). Others include the roll back malaria programme and the national malaria control policy (Worldwidescience.org, 2015).



Fig. 1: Malaria prevalence and treatment response rates in Nigeria. Source: WHO (2016), Nigeria - World Health Organization. http://www.who.int/malaria/publications/country-profiles/profile_nga_en.pdf

For these policies to achieve their expected result, there is need therefore for them to be communicated to all strata of the society and by extension the country. One of the ways to do this is by employing marketing communications. This is because marketing communication according to Doyle and Stern (2006) is a process of transmitting messages with the objectives of making an organization's products, services or ideas attractive to target audience. On malaria prevention and control programme, therefore, the purpose of marketing communication will be to inform and educate the populace on first and foremost, the existence of the malaria prevention and control policies and programmes, the inherent short and long-term benefits, how to access the services where to access the products like long-lasting insecticide treated mosquito nets (Odigbo, Eze & Bassey, 2016).

Moreso, the use of marketing communication mix, which include personal selling, advertising, sales promotion, public relations, publicity and social media (Odigbo, Okonkwo & Eleje, 2014), will inform, persuades and remind the target audience about the malaria preventive and control policies and programmes by simply dressing them up in a distinctive, attention getting forms.

2. Statement of the Problem

The World Health Organization (WHO, 2015) reports that malaria kills more people than HIV in Nigeria. According to the World Health Organization (WHO, 2003), malaria has posed great danger to the health condition and by extension productivity of citizens of Nigeria. The report reveals that malaria kills around 300,000 Nigerians a year; 250,000 of them children. Nigeria also loses around \$1billion a year from the cost of treatment and absenteeism (Nigeria Malaria Indication Survey, 2010).

This has brought to lime-light the danger malaria poses to the health conditions and by extension productivity of the citizens of the country. Mindful of this fact, government at all levels; local, regional and international organizations and agencies have stepped up their campaigns for the prevention and control of malaria in sub-Saharan Africa by formulating, disseminating and implementing policies and programmes to stem the tide.

Notwithstanding all these efforts, the malaria scourge still persists menacingly amongst the region. This calls to question the effectiveness or otherwise of the marketing communications media, techniques, messages and strategies being used in the malaria campaign. How have these marketing communications tools been employed by relevant governmental agencies, international organizations and health personnel to sensitize the

populace on the existence of the malaria control policies, programmes and measures? This study tried to find the answers to some of pertinent posers, with focus on Nigeria.

3. Objectives of the Study

The specific objectives of the study include:

- i. To determine the extent marketing communication tools helped create awareness on the malaria prevention and control programme in Nigeria.
- ii. To ascertain the relationship between the marketing communication-mix employed and the reduction in the rate of malaria morbidity and mortality problems in Nigeria.

4. Hypotheses

In view of the objectives highlighted above, two hypotheses are formulated in both null (H_0) and alternative (H_1) forms.

1. H_0 : Marketing communications' tools did not create significant awareness for the malaria prevention and control programmes in Nigeria.

H_1 : Marketing communications' tools created significant awareness for the malaria prevention and control programmes in Nigeria.

2. H_0 : There is no significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria.

H_1 : There is significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria.

5. LITERATURE REVIEW

5.1 Theoretical Framework

The theoretical underpinning for this study hinges on the health-belief model (HBM) propounded in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. It is a psychological model that attempts to explain and predict health behaviours of individuals in society. This is done by focusing on the attitudes and beliefs of the individuals. According to the Health Belief Model (HBM), the target audience in any environment are influenced by perceived personal susceptibility and seriousness of the health issue, benefits, barriers and cues to action for the desired behavior. Rosenstock et al (1998), explained that this theory emphasizes that peoples' self-efficacy determines their response to problems and explains, predicts and influences their behavior. Also, that incentives to behave is a crucial component of the model. Thus, Harrison et al (1991), postulates that the health belief model is a socio-psychology theory that has to do with the decision making of an individual in relation to his/her health behavior. In the same vein, Shillitoe (1989), adds that the understanding, attitudes and benefits people hold about a health programme determines their approach to it. Therefore, health-marketing communicators and health care providers should know how to factor these variables into their campaigns and activities (Odigbo, Okonkwo, Eneasato & Eleje, 2015). Amzat (2011), also suggests that marketing communications' research could be used to assess the progress of malaria control programs in countries like Nigeria.

5.2 Marketing Communications

Marketing communications is a careful blend and application of the major promo tools: advertising, public relations, publicity, sales promotion, personal selling, Internet and social-media in a commercial or non-commercial campaign, to either enhance sales of a product, service or promote public acceptance of a social course. (Odigbo, 2016).

5.2.1 Advertising:

Etzel, Walker & Stanton (2006) say that advertising is impersonal communication that the sponsor has paid for and in which the sponsor is clearly identified. They add that the most familiar forms of advertizing are found in the broadcast (TV and Radio) and print (Newspapers and magazines) media. Dolak (2015) adds that advertising reaches large geographically dispersed audience, with high frequency and low marginal cost per exposure, though total cost is high. The merit of advertising is that the advertiser has ultimate control over the message delivered, since he/she pays the television or radio station, print publication or website placement.

5.2.2 Public Relations

Richa (2014) submits that public relations entails using company news, promotional events, sponsorship programs along with other promotional tools to reach out to prospective target audience. Odigbo (2015) adds that public relations practitioners employ both human and non-human vehicular tools in achieving their set goals and objectives. The merits of public relations is that such a campaign is very cost-effective and economical when reaching out to a larger audience compared to paid advertising (Oti, Odigbo & Bassey, 2016).

5.2.3 Publicity

Etzel, Walker and Stanton, (2006) observe that publicity is a special form of public relations that involves news stories about organization or its products. Publicity is similar to advertising in the sense that it is a mass communication type of persuasion, but it appears in the mass media at no cost to the organization.

5.2.4 Personal Selling

Personal selling entails face-to-face communications. It may involve personal presentations by a firm's personnel for the purpose of either making sales, winning public goodwill for the organisation or its products or services, building customer relationships or convincing the public on a given course or issue. Dolak (2015) asserts that personal selling is the most effective tool for building buyers' preferences, convictions, and actions. The advantages of personal selling is that it gives opportunity for personal interaction, allows for feedback and adjustments; is more relationship oriented; commands more attention from the audience; and sometimes more commitment from organization personnel.

5.2.5 Internet and Social Media

Internet media include all the e-marketing channels like search engine optimization (SEO), pay-per-click, affiliate, email, banner, webinar, blog, micro-blogging, RSS, podcast, Internet Radio, and Internet TV, text messages, voice-mails used for digital public relations. Advertising and other marketing communications' campaigns. While social media include all the new Internet communications media for social networking like the Twitter, Facebook, LinkedIn, Foursquare, Youtube and many more (Choi and Burgess, 2007). The advantages of social media communications include that the media outlets allow you to engage in two-way communication and receive immediate feedback from your various stakeholders and publics (Zabaniotou, 2008).

5.3 Marketing Communications As A Tool For Malaria Prevention And Control

Mozumder and Marathe (2015) in their work found that there is a significant correlation between the volume of information and communication disseminated and reduced probability of deaths amongst people clinically identified as malaria infected in their area of study. The result showed that personal selling, advertising and public relations were more significant in the aforementioned outcome. The result gave credence to the idea that marketing communication tools can substantially boost the success of malaria prevention and control programmes in any environment.

On the other hand, George, Kolawole & Oliyinka (2014), identified radio jingles, television and print adverts, as effective marketing communications-mix tools for malaria control campaigns targeted at both urban and rural audiences. This they said, however, works better when complemented with interpersonal communications (personal selling). In that study, it was indicated that 47 percent of respondents have heard messages about mosquitos' nets, 53 percent heard messages about preventing malaria during pregnancy, while 38 percent heard messages about ACTs (Antemeta Combination Therapies). More so, George et al. (2014), explained that the television posts on Long Lasting Insecticides Nets (LLINs) appeared on YouTube and had 446 views, making it one of the most popular United Against Malaria TV Public Services Announcement on YouTube. This again, reveals the efficacy of social media as a marketing communication tool for successful malaria prevention and control programmes in Africa.

In the same vein, Ankomah et al. (2014) submitted that the use of mass media in promoting the use of bed net is effective. According to them, pregnant women who listened to communication campaigns were more likely to adopt strategies for prevention and control of malaria as communicated to them than those who didn't. Maibach (2007) also observed that communication and marketing are important tool kits for improving public health. These tool kits have been found to be uniquely well-suited for advancing the prevention and control of malaria in Nigeria. Dejong (2002) also assert that television, radio and print advertising are very vital marketing communication tools that can influence the populace to buy the sponsor's wide range of products and services. In addition, that television entertainment programs and movies exert enormous influence over peoples' ideas, values and behaviour. Therefore, the use of these marketing communication tools in the fight against malaria is required (Dejong, 2002).

However, Openipo and Koblowe (2013) report that there exist poor reportage of malaria prevention and control policies and measures in Nigerian newspapers. This was an outcome of their study of two national dailies (Punch and Nigerian Tribune Newspapers) over a given period of time. According to their findings, none of the two newspapers placed malaria report under editorial column and there was no malaria cartoon and advert. Therefore, they recommended increased rates of reportage of malaria prevention and control measures and polices in Nigerian newspapers to create more health awareness.

6. Methodology

Survey design was used in the study. The area of study was select urban and rural communities in Cross River State of Nigeria. The research instrument for sourcing the data was structured questionnaire. From a working population of 56,000 people, a sample size of 112 was judgmentally arrived at using a non-probability quota

sampling technique of 2 person per thousandth population. From 112 copies of questionnaire administered, only 84 (75%) were returned, and used for the data analysis. The statistical analysis was done through independent t-test.

7. Data Presentation and Analysis

7.1 Respondents' Demographic Data:

7.1.1 Respondents' AGE Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<18	9	10.71	10.71
	18-29	27	32.14	32.14
	30-39	28	33.33	33.33
	40-49	12	14.29	14.29
	>50	8	9.52	9.52
	Total	84	100.0	100.0

Table 7.1.1 gives the age range of respondents as follows: those below 18 years 10.71 percent; those between 18 to 29 years 32.14 percent; those in the age bracket of 30 to 39 years accounted for 33.33 percent, respondents within 40 to 49 years taking 14.29 percent, while those above 50 years were 9.52 percent. This shows that people of all age brackets were accommodated in the study.

7.1.2 Respondents' Educational Distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	PRIMARY	8	9.52	9.52
	SECONDARY	27	32.14	32.14
	TERTIARY	49	58.33	58.33
	Total	84	100.0	100.0

Table 7.1.2 reveals that 9.52 percent of the respondents had only primary school education; 32.14 percent had secondary school education, while the remaining 58.33 percent had tertiary schools' education. This shows that majority of the respondents were quite educated enough to understand the subject matter.

Table 7.2: On Marketing communication and awareness of malaria prevention and control

S/N	QUESTIONS	RESPONSES	
		Agreed	Disagreed
1.	Marketing communications has increased my awareness on malaria prevention and control policies and measures in the country	63	21
2.	Messages on ways of preventing and controlling malaria have helped me in sleeping with insecticide treated mosquito nets	63	21
3.	The awareness gained has helped reduce the rate at which my family members are infected with malaria	53	29

Source: Field survey, 2016.

The data in table 1 shows that 63 respondents or 75% agreed that marketing communication increased their awareness on malaria prevention and control measures and policies. Similarly, the same percentage of respondents agreed that, messages on ways of preventing and controlling malaria informed their decisions to sleep with insecticide treated mosquito nets. More so, 53 respondents or 65% reported that the malaria prevention and control awareness they gained, helped reduce the rate at which their family members are infected by the malaria.

Table 7.3: The relationship between the marketing communication-mix used and the reduction in the rate of malaria morbidity and mortality in the area

S/N	QUESTIONS	RESPONSES	
		Agreed	Disagreed
4.	Do you believe that malaria causes death both in infants and adults	71	13
5.	The knowledge of the malaria prevention and control measures has reduced the rate at which people die from malaria in my area	61	23
6.	Messages on how to keep clean environment, use mosquito nets, what to do when infected by malaria and the right place to go for treatment have reduced deaths from malaria in my area	61	23

Source: Field survey, 2016.

Data displayed on table 7.3 reveal that 71 respondents, representing 85% believed that malaria causes death in both infants and adults, while 13 or 15% of respondents disagreed with that. 61 or 73% agreed that their

knowledge of malaria prevention and control measures has reduced the rate of malaria morbidity and mortality in their communities, while 23 or 27% disagreed. Similarly, the same number of respondents believed that messages on hygiene, use of mosquito nets and effective treatment of malaria disease has helped reduce death caused by the disease in their areas, while 23 or 27% of respondents did not queue behind this position.

7.4 TEST OF HYPOTHESES

7.4.1 Hypothesis One:

H₀: Marketing communications' tools did not create significant awareness for the malaria prevention and control programmes in Nigeria.

H₁: Marketing communications' tools created significant awareness for the malaria prevention and control programmes in Nigeria.

Test Statistics: Independent T-Test.

Independent variable: Marketing Communications

Dependent variable: Malaria awareness, prevention and control

Table 7.4.1: Result of independent t – test showing whether the use of marketing communication helped in creating awareness on the malaria prevention and control in Nigeria.

Variables	N	X	SD	t-value
Marketing communications	63	48.3	8.9	9.868
No marketing communications	21	25.8	9.1	

df = 82, critical t = 1.98; calculated t = 9.868; < 05 significant.

In the table 7.4.1, since the calculated t-value (i.e. 9.868) is greater than critical t-value (i.e. 1.980) at 0.05 level of significance, and 82 degrees of freedom, the null-hypothesis one is rejected and the alternative upheld, which says that: "Marketing communications' tools created significant awareness for the malaria prevention and control programmes in Nigeria."

Hypothesis Two

H₀: There is no significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria.

H₁: There is significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria.

Test Statistics: Independent T-Test.

Independent variable: Marketing communications mix.

Dependent variable: Reduction in malaria morbidity and mortality.

Table 7.4.2: Result of independent t-test showing if there exist a relationship between marketing communications mix and reduction in the rate of malaria morbidity and mortality in Nigeria.

Variable	N	X	SD	T-value
Marketing communication tools	61	43.2	7.4	12.515
Other factors	23	21.8	6.8	

df = 82; critical – 1.980; calculated = 12.515; p<.05

source: Questionnaire questions in table tow

From table 7.4.2, calculated t-value (i.e. 12.515) is greater than the critical t-value (i.e. 1.980) at 0.05 level of significance. Hence, the null-hypothesis is rejected and the alternative upheld, which states that that: "There is significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria."

8. Summary of Results and their Implications

A summary of the results obtained in this study are as follows:

- i. Marketing communications' tools created significant awareness for the malaria prevention and control programmes in Nigeria.
- ii. There is significant relationship between the marketing communication-mix employed for malaria prevention and control and the reduction in malaria morbidity and mortality in Nigeria.

The implications of number one result are that marketing communications mix such as advertising, personal selling, public relation and publicity are employed to reached the target audience to create awareness and sensitize them in the malaria prevention and control programmes in Nigeria. This helped in achieving positive attitude and perception of the public toward the communicated programmes and policies. This is consistent with Ankomah et al. (2014) that pregnant women who listened to marketing communication campaigns were more likely to adopt strategies for prevention and control of malaria as communicated to them.

The finding that the use of marketing communication for the prevention and control programmes of malaria

have reduced the rate of morbidity and mortality in Nigeria is in line with the Family Care Association (2007) and World Health organization (WHO, 2003) submission that malaria which caused 10 percent of death and 5 percent of maternal death, is the major caused of morbidity and mortality in the sub-region, but that with effective and efficient research based marketing communication, adopted in reaching targeted audience on the prevention and control programmes and measures, there will be a significant reduction in malaria related deaths. This finding is also consistent with Mozumder and Marathe (2015), that the intensity of information and marketing communication is associated with reduced probability of deaths of people that are clinically identified as malaria infected.

9. Conclusion

Statistical evidence has shown that malaria is very common and endemic in those countries and areas where marketing communications is not efficiently employed. With death toll of around 300,000 Nigerians annually, Nigeria is one of the malaria endemic countries in the world. This problem has adverse ripple effect on the nation's economy. However, for malaria to be effectively prevented and controlled, there arise the need for the citizens to have knowledge of what causes malaria, the programmes and policies aimed at preventing and controlling the scotch and where and how to access treatment infected. This is where marketing communication comes in.

10. Recommendations

Based on the findings, the following recommendations are put forward:

1. Research based marketing communications activities that will be founded on people's culture and tradition should be increased in the country.
2. To reduce the number of deaths caused by malaria infection, there is also need to increase public education and awareness on the need for environmental cleanliness, personal hygiene and bed net usages in the country.
3. When marketing communication is used for the prevention and control programmes, the reach intensity and depth of the communication must be emphasized in the rural areas where mass media facilities are either poor or non-existent.
4. Private sectors should as a matter of urgency, assist the government in educating the masses against malaria and should take it as part of their social responsibilities.
5. Government should solicit the assistance of churches, mosques and schools as veritable marketing communication partners in the campaigns against malaria.
6. The marketing communication programmes should be planned having those who are physically challenged, peer groups, social class, community heads, care givers, reference groups and market women in mind.

REFERENCES

- Amzat J. (2011). Assessing the Progress of Malaria Control in Nigeria, *World Health Population*.
- Ankomah, A., Adebayo, S. B., Arogundade, E. D. Anyanti, J., Nwokolo, U., Inyang, E., Oladipupo, E., Ipadeola, B. and Meremiku, M. (2014). The Effect of Mass Media Campaign on the use of Insecticide – Treated bed Nets among pregnant Women in Nigeria – *Malaria Research and Treatments*.
- CDC.gov (2016), Malaria Parasites - Centers for Disease Control and Prevention. <https://www.cdc.gov/malaria/about/biology/parasites.html>
- Choi, S.; Burgess. L. (2007), "Practical Mathematical Model To Predict The Performance Of Insulating Packages". *Packaging Technology and Science* 20 (6): 369–380. doi:10.1002/pts.747.
- Dejong (2002). The Role of Mass Media Campaign and Reducing High-Risk drinking among college students, *Journal of Studies on Alcohol*, 14, 182 - 192
- Dolak, D. (2015). The marketing Guy who drives scales, Retrieved from www.themarketingguywhichriverscales.com/htm.
- Doyle, P. and Stern P. (2006). *Marketing Management and Strategy* (4th ed). Boston: Prentice Hall.
- Etzel, J., Walker, B. and Stanton, W. (2006). *Marketing*, New York: Irwin McGraw Hill.
- George, S., Kolawole M. and Oliyinka, F. (2014). Building Capacity for creating demand in support of malaria prevention and control, *Malaria consortium learning paper series*. https://www.who.int/malaria/publications/country-profiles/profile_nga_en.pdf
- Maibach, E. (2007). Communication and Marketing as tools to cultivate the public health: *A Proposed People and place" frame work*, (Loriem C. Abrom and Mark Marosits ed).
- Mozumder, P. and Marathe, A. (2015) Role of Information and Communication networks in Malaria Survival, *Malaria Journal*, Retrieved from: <http://www.malariajournal.com/htm>.
- National Population Commission and Nigeria National Malaria Control Programme publication, p.1-14.

- Nigeria Malaria Indicator Survey (2010). Preliminary Report. Abuja:
- Odigbo, B. E.; Okonkwo, R. V.; Eneasato, B. O. & Eleje, J. (2015). Changing Citizens' Negative Attitude towards HIV/AIDS in Nigeria: The Policy Thrust and Communications Strategy. *International Journal of TROPICAL DISEASE & Health* 9(3): 1-7.
- Odigbo, Ben E., Eze, Felix John & Basse, Agnes Edem (2016). Social Marketing Tools Employed For Correcting Harmful Traditional Maternal Health Practices In Cross River State, Nigeria. *International Journal of Innovative Research and Advanced Studies (IJIRAS)* Volume 3 Issue 11, p.175-180.
- Odigbo, Ben E; Okonkwo, Raphael V. & Eleje, Joy (2014). Conflicts management for public private partnership and economic development in Nigeria through social marketing tools. *International Journal of Economics, Commerce and Management*. Vol. II, Issue 11, p.1-15.
- Odigbo, Ben. E. (2016), Social public relations for immunization campaigns. Germany: Lambert Academic Publishers, p.62.
- Opemipo, O. and Koblowe, O. (2013). Malaria Reportage in Punch and Nigeria Tribune Newspapers; *American Journal of Research Communication*, 1 (9).
- Oti, Peter A.; Eze, Felix John & Odigbo, Ben E. (2016). Social Marketing Campaign As A Tool For Reducing Financial Cost Of Hiv/Aids Pandemic In Nigeria. *International Journal of Health and Psychology Research* Vol.2, No.1, p.1-13.
- Oti, Peter A.; Odigbo, Ben E. & Basse, Agnes (2016). Impact of Public Relations Expenditure on Corporate Performance of Commercial Banks in Nigeria. *International Journal of Innovative Research & Development*, Vol 5 Issue 10, p.66-73.
- Richa (2014). Built on the Genesis Framework; Retrieved From Udemy.com/htm.
- WHO (2003), Malaria is alive and well and killing more than 3000 Africans. <https://www.who.int/mediacentre/news/releases/2003/pr33/en/>
- WHO (2015), Fact Sheet: World Malaria Report 2015 - World Health Organization. <https://www.who.int/malaria/media/world-malaria-report-2015/en/>
- WHO (2016), Nigeria - World Health Organization.
- Worldwidescience.org (2015), Malaria Indicator Survey. <https://worldwidescience.org/topicpages/m/malaria+indicator+survey.html>
- Zabaniotou, A; Kassidi, A. (2003), "Life, Youths and Social Media Networking: An Assessment" *Journal of E-Marketing* 11 (5): 549–559. doi:10.1016/S0959-6526(02)00076-8.