



Investigating Health Communication Interventions on Three Major Illnesses in Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author CCO designed the study. Author ECA performed the statistical analysis. Authors CCO and ECA wrote the protocol and wrote the first draft of the manuscript. Author ECA managed the analyses of the study. Author CCO managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Communication methods are used to create and increase public awareness of a disease; its causes and treatment; change a person's or group's attitudes about a disease; advocate for policy changes in favor of prevention and control, and create social norms that favor healthful living.

Objectives: This study sought to examine the health communication interventions so far used on HIV/AIDS, malaria and TB in Nigeria, find out what has been achieved in the process and suggest how the *status quo* can be improved.

Methods: A total of 390 respondents comprising healthcare providers, patients and the general public in the selected states; Enugu (Southeast), Kaduna (Northwest) and Oyo (Southwest) states in Nigeria were sampled using questionnaire. It was a Cross-sectional study.

Results: Health communication interventions on HIV/AIDS are majorly received through radio (34.7%), friends (30.1%) and television (18.85%). For malaria, television and radio predominate (31.9%) and (26.7%) respectively, then newspaper (13.1%). However, TB was chiefly through

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health facilities (30.1%) then television (20.1%) and newspaper, (12.9%). Major types of intervention messages on the illnesses include HIV/AIDS Preventive (76.6%), Malaria Drug use (37.3%) and Tuberculosis control (38.8%). Lack of knowledge of available media was the major factor identified as hindering communication interventions for the 3 diseases. (HIV/AIDS 29.8%, Malaria 32.6% and TB 35.7%).

Conclusion: There is a need for attitudinal change by all to ensure that the level of awareness is matched with action and subsequently influence the adoption of intervention measures to improve management of these diseases.

Keywords: Health communication intervention; HIV/AIDS; malaria; tuberculosis (TB) and the big three.

1. INTRODUCTION

Communication is a vital component of healthcare delivery. It has been argued that the mass media are the leading source of information about important health issues, such as weight control, HIV/AIDS, drug abuse, asthma, family planning and mammography [1]. Health has been recognized as a central development imperative which, acts not just as a resource for, but also as an indicator of, sustainable development. In other words, health gains are believed to trigger economic growth and if the benefits of that growth are equitably distributed, poverty reduction will result [2]. Nevertheless, the development prospects of the world's poor countries have been directly undermined by major diseases, such as HIV/AIDS, malaria and TB. They drag the wheel of economic growth and subsequently perpetuate poverty [2]. Policymakers across the globe appear to have realized this reality and have therefore continued to introduce intervention programmes that will promote healthful living and ultimately promote economic growth. For instance, the Millennium Development Goals (MDGs) acknowledged the centrality of health to the global agenda of human development [3]. Goals 4, 5, and 6 are aimed at reducing child mortality, improving maternal health, and combating HIV and AIDS, malaria and other diseases, respectively. The MDG 6 was successful in promoting public sympathy for these three major diseases and subsequently realized billions of dollars to fight the diseases [4]. Health communicators should, therefore, play a role in raising awareness about certain illnesses and available interventions in the society.

HIV/AIDS, malaria, and tuberculosis have devastating impacts on poorer countries. They are killing many people, causing suffering in families and communities, and contributing to the

slowing down of economic development as well. Together, these diseases, also known as the "big three," account for a staggering 5.6 million deaths and the loss of 166 million disability-adjusted life years (DALYs) annually [5]. Prominent partnerships and initiatives are now devoted to combat the big three.

Effort is being made to promote adherence to treatment of tuberculosis and malaria that has been reportedly hampered by drug resistance while improving innovative domestic financing and efficient use of available resources [6]. There are ongoing effort by Scientists to develop an anti-malaria vaccine which is currently undergoing clinical tests to ensure its safety. In Nigeria, efforts to curb the menace of the three illnesses were articulated in the National Policy on HIV/AIDS [7], National Tuberculosis & Leprosy Control Program [8] and National Malaria Control Program [9]. It must be stressed at this point, that the main contents of the frameworks revolve around advocacy, behavior change communication and social mobilization. Indeed, the strategic frameworks for HIV/AIDS, TB and malaria communication, which are the major fallouts of the above policies, have been developed to ensure adequate awareness and utilization of interventions in Nigeria.

Yet malaria causes the death of an estimated 250,000 children under the age of five every year. It is also responsible for about 66 per cent of all clinic visits [10], and accounts for an average of 300,000 deaths a year [11]. Furthermore, there were almost 3 million people living with HIV in Nigeria by the end of 2009 and approximately 192,000 persons died from AIDS the same year. In addition, Nigeria has one of the highest tuberculosis (TB) burdens in the world (311 per 100,000) and the largest in Africa. Despite Nigeria's rising TB detection rates and program coverage, many TB cases are still undetected. The high rates of TB/HIV co-

infection account for significant health challenges in the HIV/AIDS response [12,13]. Given the above scenario, therefore, one is inclined to think that there is definitely a missing gap. It is either that the intervention programs do not reach the desired target or they are not appropriately communicated to influence change. Health communication intervention is, therefore, very pertinent in the effort to arrest this ugly trend. It is pivotal in the effort to understand, create and communicate people-oriented media messages which will ultimately improve healthcare.

Communication experts and policy makers across the globe have attempted to find a solution to some nagging social problems. Some of such studies focus attention specifically on health interventions [2,13,14], others on health and tailored communication or media reportage of health issues [15-17] and still others on a combination of health interventions and communication interventions [18, 19,20] in locations of interest. Each of these studies aims at improving health care delivery in the study domain(s). Health interventions have become very relevant in the effort to promote good health behavior or to prevent bad health behaviors. In actual fact, health policymakers are increasingly recognizing the importance of controlling health risk factors through interventions that alter behaviors, one's lifestyle or modify risky health behaviors. Nevertheless, we shall lay emphasis on communication and health interventions as they relate to HIV, TB and malaria.

These three illnesses are seen as the most serious problems facing health practitioners [21]. According to Jack C. Chow, WHO's Assistant Director-General for HIV/AIDS, Tuberculosis and Malaria, "the combined toll of the 'big three' diseases have been so high and the risk to global health is so great" [3]. This explains why Forman argues that "greater flows of information are central to the success of AIDS strategies, and for reducing the vulnerability that flows to and from HIV infection n[22]. In a region often characterized by resource limitations and fragmented infrastructures, information and communication are two of the most critical and abundant resources available in the fight against HIV/AIDS." Thus, in order to reduce infection rates attributable to a lack of information and many of the social ills associated with misinformation and myths around the epidemic, effective and appropriate communication are fundamental. The above views were corroborated by Arnold when she noted that, "in

an era where HIV affects the lives of millions of people, media and communications play a prominent role in halting the spread of the epidemic." [23].

The study conducted in Senegal revealed that broad-based response to HIV epidemic has helped to reduce the level of infections when compared to some other African countries. Three key programs of action taken to ensure this result include; Sex education in primary and secondary schools, treatment of sexually transmitted infections and effective promotion of condom use. Consequently, HIV infection rate in Dakar fell below 2% [2]. On the solution to increasing malaria scourge, Seidel *et al* aver that "well-planned and well-executed communication programs can contribute to achieving malaria prevention and treatment goals in a wide range of ways." [24] A systematic review of articles on barriers to the effective treatment and prevention of malaria in Africa over three decades by Maslove *et al* revealed that lack of understanding of the cause and transmission of malaria constitutes the most critical barrier to malaria prevention (74.4%) [25]. They also noted that the belief that a child with convulsion could die if given an injection or taken to hospital (25.6%) [25]. Indeed, and as reported by Maslove *et al* any successful effort at prevention and treatment of malaria in Africa must take cognizance of the overall social and cultural contexts, namely their values, belief systems and norms. This is where communication intervention becomes intrinsically very relevant to enable us to educate them on the causative factors of malaria, as well as the treatment regimens.

Furthermore, the need to step-up communication efforts to combat TB has been emphasized and clearly stated in Panos Policy Briefing [26]. It noted that TB challenge is enormous, but can be met through innovative and comprehensive communication strategies. The role of the media is argued to be critical in the process. This corroborates the success story reports of two countries that "without an effective communication strategy, neither Peru nor Vietnam would have reached their goals of detecting at least 70 percent of pulmonary TB cases and successfully treating 85 percent of them. Making TB a national health priority and adding a comprehensive communication strategy to the improved clinical services enabled both countries to succeed." [27].

Scholars have identified a number of challenges to health communication interventions. These range from lack of knowledge of health interventions and weak communication components (major barrier to its adoption) to other issues such as social, demographic, literacy levels, language, and paucity of trained professionals etc. These affect health communication efforts [22,27,28].

1.1 Theoretical Framework

In structuring our media research on health communication interventions, we posit a set of assumptions from which our theoretical framework takes cue. The first is that media campaigns are generally motivational. They aim to structure, influence or modify the attitude of the recipients. Secondly, there are variations in people's perceptions about health, the causation of ailments and appropriate treatment. Thirdly, a number of cultural, socio-psychological and environmental factors influence people's perceptions of media-oriented messages; which in turn, influence the acceptability or otherwise of healthcare resources or programs. What can be derived from the above assumptions is that they are so diverse to be handled from a single theoretical perspective.

This explains why Health Belief Model (HBM) and social ecological model (SEM) have been employed to execute this research. The HBM is used to explain and predict health behaviors by focusing on the attitudes and beliefs of individuals. It is predicated on the understanding that a person will take a health-related action... if that he/she feels that a negative health condition can be avoided; if he/she has a positive expectation that by taking a recommended action, he/she will avoid a negative health condition... and; if he/she believes that he/she can successfully take a recommended health action [29]. It is on the basis of the above assumptions that this paper, among other things, examines how people's reaction to media messages could help them take essential actions that will alleviate the menace of the big three illnesses.

On the other hand, the Social Ecological Model (SEM) posits that human behavior is influenced and shaped by the environment in which he lives. "The model represents a comprehensive approach to designing, implementing and evaluating interventions which target the multiple influences on behaviour"[30]. It takes cognizance

of the intricate interplay between individuals, relationship, community and societal factors

2. METHODS

This study was conducted in the three states of Enugu (Southeast), Kaduna (Northwest) and Oyo (Southwest) states in Nigeria. The choice of the three states was informed by the desire to ensure a wider geographical coverage and representation. Also, the states host the three first generation universities and their teaching hospitals, namely University College Hospital (UCH), Ibadan, University of Nigeria Teaching Hospital (UNTH), Enugu and Ahmadu Bello University Teaching Hospital (ABUTH), Zaria. The hospitals are usually the centres of attraction for the illnesses studied as well many intervention and donor agencies, government or private interest groups would normally collaborate with them to ensure good health care delivery.

Respondents consisted of healthcare providers, patients and the general public drawn from the teaching hospitals and environs in the states. A total of 390 respondents were sampled (130 each from the three states) but 389 were reported on. This figure was arrived at through the use of Sample Size calculation formula for descriptive study using prevalence of 50%, error margin of 5% and a confidence level of 95%. It was a Cross sectional study. Copies of questionnaire were administered to our respondents using consecutive sampling. Confidentiality was assured through the non-inclusion of self-identifying characteristics in the questionnaire. Information was also gathered from Key informants including: staff of Ministry of Health, Program officers for HIV/AIDS and Malaria as well as TB control Officer. Percentages and tables were used to present the results of the research. Data was analysed using Statistical Package for Social Sciences version 20.

3. RESULTS

Majority of the respondents (40.9%) fall within the age group of 31–40 years. More than half of them (55.8%) were female, and 52.2% of the respondents were married. A little above sixty-seven percent of the respondents had post-secondary school qualification (diploma or bachelor degree).

Result showed that health communication interventions on HIV/AIDS are majorly received

through radio (34.7%), friends (30.1%) and television (18.85%). For malaria, television and radio dominate the health communication interventions (31.9%) and (26.7%) respectively, followed distantly by newspaper (13.1%). TB chiefly through health facilities (30.1%) followed by television (20.1%) and newspaper, (12.9%). Mass media (Radio, Television, Newspaper, and Magazine) accounted for 61.5% in HIV/AIDs, 79.7% in Malaria and 48.7% for TB.

Information from key informants and open-ended question on the questionnaire showed that bill boards, hand bills, posters, handsets text messaging, union gathering/meetings, workshops, schools and religious leaders are valued by the people as alternative channels of health communication.

Table 1. Socio-demographics of respondents

Variables	Frequency n=389	Percent 100%
Age (Years)		
18-30years	136	35.0
31-40years	159	40.9
41-50years	66	17.0
Above 50years	28	7.1
Sex		
Male	172	44.2
Female	217	55.8
Marital status		
Married	203	52.2
Single	159	40.9
Divorced	9	2.3
Widowed	13	3.3
Separated	5	1.3
Education level		
Primary	24	6.2
Secondary	88	22.6
Tertiary	261	67.1
Others	16	4.1
Employment status		
Employed	227	58.4
Self-employed	49	12.6
Unemployed	55	14.1
Student	52	13.4
Others	6	1.5

Table 2. The communication avenues through which respondents receive information on HIV/AIDs, Malaria and Tuberculosis

Variables	HIV/AIDs	Malaria	Tuberculosis
	n(%)	n(%)	n(%)
Friend	117(30.1)	16(4.1)	8(2.1)
Radio	135(34.7)	104(26.7)	24(6.2)
Television	73(18.8)	124(31.9)	78(20.1)
Newspaper	23(5.9)	51(13.1)	50(12.9)
Magazine	8(2.1)	31(8.0)	37(9.5)
Church	15(3.9)	20(5.1)	35(9.0)
Association/Meetings	2(0.5)	15(3.9)	30(7.7)
Clinic	15(3.9)	24(6.2)	117(30.1)
Others	1(0.3)	4(1.0)	10(2.6)
Total	389(100)	389(100)	389(100)
Mass media*	239(61.5)	310(79.7)	190(48.7)

*Mass media----Radio, Television, Newspaper, Magazine

Table 3. Types of intervention messages on HIV/AIDS, Malaria and Tuberculosis

Variables	HIV/AIDS	Malaria	Tuberculosis
	n(%)	n(%)	n(%)
Preventive	298(76.6)	114(29.3)	69(17.7)
Drug use	72(18.5)	145(37.3)	41(10.5)
Control/Management	16(4.1)	116(29.8)	151(38.8)
Curative	2(0.5)	12(3.1)	116(29.8)
Others	1(0.3)	2(0.5)	12(3.1)
Total	389(100)	389(100)	389(100)

Table 4. Ranking by respondents on adequacy of information on HIV/AIDS, Malaria and Tuberculosis

Variables	HIV/AIDS	Malaria	Tuberculosis
	n(%)	n(%)	n(%)
Very Adequate	251(64.5)	162(41.6)	115(29.6)
Adequate	124(31.9)	188(48.3)	126(32.4)
Not Adequate	14(3.6)	39(10.0)	148(38.0)
Total	389(100)	389(100)	389(100)

Table 5. Inhibiting factors to communication interventions on HIV/AIDS, Malaria and Tuberculosis

Variables	HIV/AIDS	Malaria	Tuberculosis
	n(%)	n(%)	n(%)
Lack of education	105(27.0)	36(9.3)	33(8.5)
Lack of resources	69(17.7)	89(22.9)	39(10.0)
Language barrier	27(6.9)	43(11.1)	55(14.1)
Religious inclination	10(2.6)	24(6.2)	37(9.5)
Lack of knowledge of available media	116(29.8)	127(32.6)	139(35.7)
None	58(14.9)	64(16.5)	70(18.0)
Others	4(1.0)	6(1.5)	16(4.1)
Total	389(100)	389(100)	389(100)

Result showed that types of intervention messages on HIV/AIDS, Malaria and Tuberculosis were preventive 76.6%, 29.3% and 17.7%, drug use 18.5%, 37.3% and 10.5% curative 0.5%, 3.1% and 29.8% respectively.

Result showed that for the adequacy of communication information, $\geq 90\%$ stated that it was adequate or more for HIV/AIDS and Malaria while it was about 60% for TB.

Results revealed that identified factors includes: lack of knowledge of available media (29.8%) for HIV/AIDS, (32.6%) for malaria and (35.7%) for TB; lack of education (27.0%) for HIV/AIDS, (9.3%) for malaria and (8.5%) for TB. Interestingly, a good number of respondents do not feel constrained by any of these factors: (14.9%) for HIV/AIDS, (16.5%) for malaria and (18.0%) for TB.

4. DISCUSSION

Data collected showed that majority of the respondents have heard about the three diseases from the communication media. Findings from oral source showed that some people see the non-formal avenues of communication, such as bill boards, hand bills, posters, handsets text messaging, workshops and schools as alternative and invaluable channels for health communication.

Impliedly, the mass media, interpersonal and non-formal avenues of communication should be incorporated in the intervention efforts to address the big three killer diseases in Nigeria. There are variable preferences among the people in the three study locations in the choice of health communication interventions. Indeed, due to differences in peoples' culture, level of education,

beliefs, associations and locations or places of abode, a combination of communication channels in communicating the three killer diseases is necessary. The National Strategic Plan (NSP) 2010-15 recognized this fact when it noted that “communication interventions, including information, education and communication (IEC) and behavior change communication (BCC), hold a vital and indispensable place in HIV prevention interventions”. [31] Nigeria’s National Policy on HIV/AIDS’ recommends that communication “programs on safer sexual behavior shall take advantage of appropriate institutional settings, including workplaces and schools, and community structures to ensure their cost-effectiveness, and integration with existing programs, where necessary, to support their institutionalization”[7]. AVERT document argues that given the diverse nature of Nigeria, “media campaigns to raise awareness of HIV are a practical way of reaching many people in different regions”[32]. Malaria control and treatment also require multifaceted approaches. As Carrington aptly puts it, “no single individual method can be used to achieve a successful malaria control program.”[33] For TB, some form of media or channels of communication (e.g. mass media, community media, and interpersonal communication) have been used to create awareness. However, much of the effort revolves around transmitting a series of messages to people affected by the disease [34].

The foregoing encourages the interplay of various communication variables to ensure that health communication interventions on three illnesses permeate all regions and address every Nigerian citizen. This is adjudged the main reason for combining the conventional mass media, interpersonal communication modes and other non-formal channels of communication in the process.

Oral evidence and information collected through survey show that the media is promoting health information on the three illnesses, even though there are variations in response ratings. It is worthy to note that the use of communication component for TB interventions is relatively younger when compared to HIV/AIDS and malaria. In Nigeria, a nationwide Behavioral Change Communication (BCC) intervention to increase the utilization of TB care services commenced as late as year 2000.[35] Impliedly, the low rating of media coverage of TB issues, as revealed by field work, is associated with the

delayed launch of communication element into TB care services in Nigeria, especially when compared to HIV/AIDS and malaria.

Further analysis showed major disparities between the ratings for HIV/AIDS and malaria with those of TB with respect to the adequacy of media information. This argument is anchored on the fact that 3.6% of HIV/AIDS respondents, 10% of malaria and 38% of TB respondents, indicated that media information on the ailments are ‘not adequate’. This result is also consistent with the earlier findings that revealed that media coverage on TB issues is scanty when compared with the other two ailments.

A number of factors were noted to have challenged people’s access to communication interventions in the study areas. These findings are in tandem with the views expressed by scholars in the literature review section who identified lack of knowledge of health interventions and weak communication components as major barriers to its adoption.[23, 28, 29.] Indeed, lack of knowledge is linked to lack of awareness, limited access and unavailability of other opportunities that may enable positive response to communication interventions on the illnesses. Similar observations have been made in that there is a link between lack of communication and poor case detection, and ultimately care to seek.[34] In actual fact, studies conducted in different countries, including Ethiopia, India, Mexico, Nigeria, Pakistan and Thailand revealed that patients with low knowledge about the symptoms of TB, for example, are more likely to delay seeking care and getting tested. Research results from some communities in Tanzania also revealed that patients with low knowledge are more likely to visit traditional healers and pharmacists than DOTS providers [34]. Thus, poor knowledge of ailments and available media is a challenge that may lead to other negative consequences.

It is instructive to note that a good number of the respondents indicated that no factor inhibits their access to communication interventions on the three illnesses, yet they see poor knowledge of available media for communication interventions as a challenge. The implication of this finding is that the respondents, and indeed Nigerians, are generally apathetic to health issues at the initial stages and health intervention is no exception. Besides, poor knowledge of health intervention is a major inhibiting factor because it

leads to ignorance which in turn retards development.

5. CONCLUSION

The main constraints to health communication interventions could be effectively addressed if we adopt a step-by-step approach in planning, if we properly select the target audiences and design the surveys, and if we formulate key messages that will provide the best foundation for a program's success. This foundation is invaluable in the selection, execution and testing of appropriate materials. Finally, engagement with key medical and required stakeholders, as well as the media, will maximize positive outcomes for health communication programs.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. World Health Organisation. Priority interventions: HIV/AIDS prevention, treatment and care in the health sector. Geneva: WHO Press; 2009.
2. Schirnding Yasmin. Health and sustainable development: Addressing the Issues and Challenges – WHO background paper prepared for the World summit on Sustainable Development, Johannesburg South Africa; 2002.
3. Chow Jack. WHO reinvigorates role to fight 'big three' diseases. WHO News Bull World Health Organ. 2005;83(3):168–170
4. Fan Jingyun. Neglected diseases increase susceptibility to HIV, malaria. The Tech. 2011;131(31):13.
5. Hotez Peter, Molyneux David, Fenwick Alan, Ottesen Eric, Sachs Sonia, Sachs Jeffrey. Incorporating a rapid-impact package for neglected tropical diseases with programs for HIV/AIDS, tuberculosis, and malaria. PLoS Med. 2007;4(9): e277. DOI: 10.1371/journal.pmed.00402772006.
6. Ovuorie Tobore. African ambassadors call for more actions against HIV/Aids, TB, malaria. AllAfrica.com; 2013. (Accessed on 16/7/16)
7. Federal Government of Nigeria. National Policy on HIV/AIDS; 2009. Available: nigeria.unfpa.org Accessed 28/07/2016
8. Federal ministry of health Abuja Nigeria. National TB and leprosy control programme Annual Report-2008. June; 2009. Available: www.ntbltc.org (Accessed on 16/7/16).
9. Federal ministry of health Nigerian malaria control in Nigeria. A Strategy for Behaviour Change Communication in the Roll Back Malaria Programme, Nigeria; 2008.
10. UNICEF/Nigeria/Gangale Partnering to roll back malaria in Nigeria's Bauchi State; 2009. Available: <http://www.unicef.org> (Accessed on 6/7/16)
11. Nigerian Millennium Development Goals Report; 2010. Available: www.mdgs.gov.ng. Retrieved on 13/4/2012
12. USAID; 2011. Available: <http://nigeria.usaid.gov> (Accessed on 6/7/2016)
13. Romer D, Kim S. Health interventions for African American and Latino Youth: The potential role of mass media. Health Education Quarterly. 1995;22(2):172–189.
14. O'Mara A, Marrero-Guillamon I, Jamal F, Lehman A, Cooper C, Lorenc T. Matrix evidence. Tuberculosis evidence review 1: Review of barriers and facilitators. National Institute for Health and Clinical Excellence (NICE) London: Matrix Knowledge Group; 2010.
15. Cassell M, Jackson C, Cheuvront B. "Health communication on the internet: an effective channel for health behavior change?" Journal of Health Communication. 1998;3(1):71–79.
16. Miranda Giovanna, Vercellesi Luisa, Pozzi Edoardo, Bruno Flavia. Improving health communication supporting the practice of health communication in. Health Information and Libraries Journal, Health Libraries Group. 2008;26;(1):39-46.
17. Betrand Jane. Diffusion of Innovations and HIV/IDS. Journal of Health Communication. 2004;9:113-121.
18. Barker Karen, Lowe Catherine, Reid Margaret. The use of mass media for health care messages about back pain-First Edition. Norwich. Health & Safety Executive; 2006.
19. Friel S, Hope A, Kelleher C, Comer S, Sadlier D. Impact evaluation of an oral health intervention amongst primary school children in Ireland. Health Promotion International. 2002;17(2):119-126.

20. Frisby Cynthia. Messages of hope: Health communication strategies that address barriers preventing black women from screening for breast cancer. *Journal of Black Studies*. 2002;32(5):489-505.
21. Molyneux David, Hotez Peter, Fenwick Alan. Rapid-Impact interventions: How a policy of integrated control for Africa's neglected tropical diseases could benefit the poor. *PLoS Medicine*. *PLoS Med*. 2005;2(11):e336. DOI:10.1371/journal.pmed.0020336
22. Forman Lisa. HIV/AIDS, Information and communication in Africa. APC Theme Discussion Paper. 2003;45. Available:<http://schoolnet africa.org.pdf> (Accessed on 10/8/ 2016).
23. Arnold E. Book review in Culture, Health and Sexuality. 2006;8:5. Available: <http://www.jstor.org> (Accessed on 20/07/2016).
24. Seidel Renata, Pennas Thaddeus, Kovach Tara, Kim Phillis, Divine Beatie. The strategic framework for malaria communication at the country level; 2012-2017. Available:<http://www.fhi360.org/> (Accessed on 14/7/2016).
25. Maslove David, Mnyusiwalla, Anisa, Mills Edward, McGowan Jessie, Attaran Amir, Wilson Kumanan. Barriers to the effective treatment and prevention of malaria in Africa: A systematic review of qualitative studies. *BMC International Health and Human Rights*. 2009;9:26.
26. Panos London AIDS programme. Time for Action on TB Communication; 2005. Available: <http://www.stoptb.org>
27. Thuy Do, Llanos-Zavalga Fernandez, Huong Nguyen, Poppe Patricia, Tawfik Youssef, Church-Balin Cathleen. The role of health communication in achieving global TB control goals - lessons from Peru, Vietnam and beyond. Health communication insights summary. Baltimore: Health Communication Partnership based at Johns Hopkins Bloomberg School of Public Health / Center for Communication Programs; 2004.
28. Magashi Aminu. Tuberculosis in Nigeria. Daily Trust; 2011.
29. Glanz Karen, Bishop Donald. The role of behavioral science theory in development and implementation of public health interventions. *Annual Review of Public Health*. 2010;31:399-418.
30. Victorian curriculum and assessment authority (VCE). Physical Education; 2011-2014. Available:www.vcaa.vic.edu.au Accessed 15/7/2016.
31. Nigerian National HIV/AIDS Strategic Plan; 2010-2015. Available:Nigeria.unfpa.org/pdf (Accessed on 28 July 2014).
32. Averting HIV and AIDS. AVERT. The history of HIV in Nigeria. 2012 Available: <http://www.avert.org/aids-nigeria.htm> Accessed on 29/07/2016.
33. Carrington Arese. Malaria: Its human impact, challenges, and control strategies in Nigeria. *Harvard Health Policy Review*; 2001;2(2):1-3.
34. Deane James, Parks Will. Advocacy, Communication and Social Mobilization to Fight TB; A 10-Year Framework for Action; 2006. Available:whqlibdoc.who.int/publications (Accessed on 28/07/2016).
35. Onyeonoro Ugochukwu, Chukwu Joseph, Nwafor Charles, Meka Anthony, Oshi Daniel C. Effect of TB behaviour change communication (BCC) intervention in Enugu state, southeast Nigeria. *Health Education*. 2013;113(6):536-545.

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