

Promoting Public Health Campaign on Awareness and Screening for Multiple Myeloma in Nigeria

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Abstract

Background: Multiple myeloma (MM) is one of the commonest haematological malignancies with orthopaedic complications due to its skeletal related events (SREs) such as chronic bone pain, osteoporosis and pathological fracture.

Objective: The objective of this study is to promote the campaign on awareness and periodic screening for MM in the middle-aged to elderly (≥ 40 years) target group.

Methods: This is by systematic review and literature search of evidence-based research articles on MM, especially in sub-Saharan Africa and the theoretical behavioural frameworks to effect the desired change in the target population. This was by translating the three major terms of the research question to the controlled vocabulary of the database. The three terms or keywords used were Health Promotion, Health Campaign and MM. PubMed, Google scholar, Cochran Database Systematic Review, African Journal Online were used as the search database.

Results: The expected outcome will be the adoption of the campaign innovations in all perceived susceptible group as evidenced by early screening and treatment.

Conclusion: The successful execution of this campaign policy will increase awareness and case ascertainment of MM in the targeted population. The hallmark will be early diagnosis and improved life expectancy of people living with MM in the region.

Keywords: Health promotion, Health Campaign, MM, Nigeria

INTRODUCTION

According to the World Health Organisation report based on the first international conference on health promotion held in Ottawa in 2016, health promotion literally means the process of enabling people to take control over, and to improve their health conditions [1]. It is any combination of education, political, regulatory and organizational supports for actions and conditions of living conducive to the health of individuals, groups or communities [2].

In both definitions, health promotion goes beyond something medical, or something you fix to the doctor or availability of technology, medicine or high gross national product, rather, it is something that is rooted in our culture, social behaviour and how we allocate our resources and opportunities which will ultimately lead to improved quality of life.

Health promotion messages are effectively disseminated globally today due to health communication. It is the medium through which

public awareness of critical health issues are created, thereby bringing about the desired behavioural and social change in the targeted audience or community [3]. Health communication is described as the art and technique of informing, influencing, and motivating individual, institutional, and public audiences about important health issues [4]. It is the vehicle of bringing about a desired attitudinal or behavioural change in any population. The triad: communication, social marketing and public relations are inter-related and are essential ingredients for successful public health campaign.

The current health issue that needs to be promoted is campaign on awareness and screening for multiple myeloma in Nigeria. Multiple myeloma (MM), literally known as cancer of the bone marrow, is a malignant plasma cell disorder characterized by clonal proliferation of terminally differentiated B-lymphocytic cells in the bone marrow [5]. It is one of the commonest hematological malignancies of public health importance in low-income countries of sub-Saharan Africa. It accounts for about 1% of all cancer diseases world wide [6]. When compared to the White population, it occurs commoner in the Blacks and people of Africa-American descent in the United States. It is commoner in black elderly (60 years and above) males than their female counterparts [7]. In Nigeria, the knowledge base of MM is low among both the health care providers and the entire public, and so case ascertainment is poor [8]. Most diagnoses are made late, after complications must have set in, leading to delayed commencement of treatment, poor prognosis, and reduced life expectancy of the sufferers in Nigeria [9, 10, 11]. Only 7.6% of diagnosed multiple myeloma patients survive up to 5 years post-diagnosis in Nigeria [12]. This was far below estimated five years post-diagnosis period survival of 44.9% recorded by Surveillance Epidemiological End-Results (SEER) cancer statistics review of 1975-2007 in the USA [13]. The implication is that Nigeria is about fifty years behind the United States of America in the management of multiple myeloma as at the year 2007. Based on all these challenges, a public health campaign on multiple myeloma screening test in the targeted audience (40 years and above) became necessary in Nigeria. Public health campaign is well chosen because it is the medium through which public health messages are disseminated, hence, a health promotion strategy using advocacy and mediation mechanisms (Figure 1).



Fig 1. Health Promotion using Advocacy as a strategic mechanism to embark on a Public health campaign on awareness and screening test for multiple myeloma in middle-aged and above population.

METHODOLOGY

Study Design

This is a proposed multi-centred observational prospective study which is expected to run concurrently in the primary, secondary and tertiary health institutions of the six geopolitical regions of Nigeria over three years in twelve consecutive quarterly intervals.

Identification of the Targeted Audience and Justification for Health Promotion

The target audience includes the middle-elderly age population in Nigeria (≥ 40 years). What informed this age group is that previous studies have shown multiple myeloma occurring at younger age group in Nigeria [9, 10, 14]. This age group which forms about 12.5% of the total population of Nigeria [15], are at risk of presenting with chronic waist pain, and occasional pathological fracture and they are managed primarily as skeletal-related events by the orthopaedic surgeons without making the actual primary diagnosis [12,16]. Sometimes they are misdiagnosed by the attending physicians because of lack of knowledge of the clinical course of the disease [8,9]. There is, therefore, a need to remind the physicians to exercise a high index of suspicion of multiple myeloma (by conducting screening tests) in any middle-aged or geriatric group who present to the clinic with chronic waist pain or

pathological fracture. The only possible medium to justify this public health intervention is by health promotion. This campaign will also target health professionals in its educational session to update their knowledge on the diagnosis of the disease to resolve the diagnostic dilemma. The target audience is a combination of people with different levels of health literacy, and so this must be taken into cognizance while crafting communication strategy.

These desired changes are expected to be brought into effect by using behavioral theories for modification. Theory is defined as a set of interrelated concepts, definitions, and propositions that explain or predict events or situations by specifying relations among variables [17]. Public health initiatives are carried out based on the knowledge of health behaviors, and a growing body of evidence suggests that interventions based on explicit theoretical foundations are more effective than those without a theoretical base; and those with multiple theories have more significant and long-lasting effect [18].

Theories that gain recognition in a discipline, shape the field, help define the scope of practice, and influence the training and socialization of its professionals. The recently updated review of theory used in published research showed that the most often used theories include Health Belief Model (HBM), Transtheoretical Model (TTM), Theory of Reasoned Action (TRA), and Theory of Planned Behaviour (TPB) [17].

HBM is mostly favoured theoretical model for target intervention in cancers especially breast cancer [19]. It can also serve the same purpose in the case of MM. The HBM for this campaign will use four evaluations for target mapping. They include the perceived susceptibility, perceived severity, perceived benefits and perceived barrier.

For the Perceived Susceptibility, the target intervention is creating awareness of multiple myeloma, the clinical presentation such as chronic back pain or bone pain of greater than three weeks duration in the target population.

For the Perceived Severity; the target intervention will be complications of multiple myeloma such as chronic anaemia, renal failure, pathological fracture, osteoporosis, the burden of treatment of the disease.

For Perceived Benefit, the target intervention will be to define the benefits of early screening for myeloma

in the targeted group in Nigeria. Such benefits like early treatment when detected early will improved quality of life, overall survival and life expectancy of the targeted group.

For the Perceived Barrier, The target intervention include an outline to incorporate periodic screening for myeloma in the target group in all health institutions in Nigeria as a disease common in the geriatric population (Policy). Use of social marketing theory could also be useful in promoting multiple myeloma screening in Nigeria.

Is there any Current Health Policy to Address MM in Nigeria?

There is no local or national policy to address the current health challenge of MM in Nigeria. Health policy is one of the greatest influencer of health outcomes such as average life expectancy and infant mortality rate (IMR) in any nation. The United Nation and the World Health Organization use the health outcomes of the population of a nation to rank the nation [20]. Nigeria ranks 214th (with average life expectancy from birth of 53.8 years) out of 224 member countries of United Nations. The implication is that two hundred and thirteen countries in the world are healthier than Nigeria. In addition, based on the 2017 Central Intelligence Agency Factsheet report, Nigeria is the eight worse country to be born on earth with Infant Mortality Rate, (IMR) of 69.8 per 1000 live births per year [20]. When you compare this to Canada which ranks 21st with average life expectancy of 81.9 years and IMR of 4.5 per 1000 live births per year, the difference is quite enormous. All these necessitated the need for a public health campaign on awareness and screening test for MM in the above target population in the nation.

This campaign is designed:

To raise the awareness of MM among our healthcare providers and the target audience.

To change the attitude of the targeted audience to a periodic screening test for MM.

To institutionalize a periodic Multiple Myeloma screening policy for the targeted population in all health institutions in Nigeria

To improve the quality of life of people living with MM in Nigeria by early diagnosis and early definitive therapy.

To prevent the incidence of MM through a change in risky behaviours that could predispose to it.

To reduce the disease burden of MM and improve life expectancy in the targeted audience in Nigeria (Figure 2).

Presumed Benefits

- *Early Screening, Early detection*
- *Early detection, Early Treatment*
- *Early Treatment :*
 - ✓ *Prevents complications,*
 - ✓ *Improves Quality of life,*
 - ✓ *Prolongs Overall survival*
 - ✓ *Improves life expectancy*

Fig 2. *The presumed benefits of on Public health campaign on awareness and Screening for MM*

It is expected that these presumed benefits would address the endemic problem of MM in this part of the world. This will improve the health outcomes of people living with MM in Nigeria which will ultimately impact positively on the population health.

Perceived Barriers in Executing Campaign Messages on MM Screening in Nigeria.

- I. Funding – Public health campaign on awareness and screening for multiple myeloma in the middle-aged and geriatrics that make up 12.5% of Nigerians (Africa most populous nation with population size of 166.6 million and annual growth rate of 3%) will be capital intensive. The health education, information dissemination using communication tools such as social media or mass media, and point-of-care tests will require funding. This could be a difficult task for a nation whose annual budget for Public Health expenditures is less than the stipulated 15% of gross domestic product (GDP) [20]. There is a need for collaboration (local or international) if this health promotion must work [21].
- II. Reaching Out to the target audience. This campaign should target both urban and rural communities.

The vehicle of information dissemination should include mass media (radio, TV), Social media (Facebook, Blog, Flickr, Twitter, etcetera), posters and bills. The campaign language must be culturally friendly (i.e., Igbo, Yoruba, Hausa, English, etcetera), relevant and understandable. In order to mitigate the challenges of health literacy and culture barriers, there is a need to continually engage the communities using Community-Based Participatory Research (CBPR) groups [3].

- III. Other barriers include and not limited to: a) Healthcare providers reluctance to recommend a periodic screening test for multiple myeloma in the target audience (even when they present with the symptom of chronic back pain) probably due to knowledge gap about the disease. b) The cost of a periodic screening test for multiple myeloma (i.e., urine and blood test for Bence Jones protein and paraproteins) could be prohibitive for the target audience. c) The perception of risk – that is the feeling that they are not at risk of being diagnosed multiple myeloma and so are not to consent to go for the pre-test. These barriers could control the knowledge (awareness), attitudes, beliefs and intentions of the target audience [22]. The application of the behavioral theory becomes very important in the dissemination of communication objectives to the target audience. In this campaign, the use of Health Believe Model (HBM) to deal with the belief barriers and theory of planned behaviour (TPB) through Perceived Behavioral Control (PBC) and Subjective Norms to deal with the intentional and attitudinal barriers may be useful to drive the communication objectives. The latter may involve the use of online advertisement, media outreach (radio, television, newspaper), or creation of messages via billboards on the highways, streets, and the involvement of civil-based organization (CBO) in information dissemination. The use of Transtheoretical Model (TTM) could be helpful in measuring the behavioral change in the targeted audience especially during evaluation. Therefore, Multiple theoretical approaches will bring long-lasting effect in this campaign [17].

Potential Interventions that might work to address the campaign needs in future

Application of social marketing theory. This involves the application of the concept of commercial

marketing techniques to the planning, analysis, and evaluation of the campaign programs designed to influence institutional and individual behaviours of the targeted audience. As the planner, in this context, screening test for MM will be offered as the benefit to the targeted audience [23].

Partnership with pharmaceutical companies that produce some of the anti-myeloma drugs such as Novartis, Takeda, Celgene in marketing the campaign. Other Non-governmental donor agencies such as the World Health Organization could be helpful to drive the Campaign as a strategy of prolonging life expectancy. Laboratories that participate in the assessment of patients with MM can also be included in marketing the campaign.

Community involvement/mobilization by recruiting operational and supportive staff in the six geopolitical zones of Nigeria, who will be able to get to their target audience in their zones. Liaising with community heads, Civil Service Organizations and Community-Based Organizations, radio adverts and Television interviews or interactive forums to create awareness.

Training of the staff on their expectations including how to give health talks on the clinical presentation of MM to target audience, basic skills on how to screen for MM in a patients, and how to document on MM cancer registries.

Technology transfer which include screening of adopted target audience commences after mobilization and training. The screening test is using rapid test kits (POCT) to detect Free Light Chains, Bence Jones Protein, or Immunoglobins in Urine or blood.

RESULTS

The topmost priorities of this campaign are to reduce the period of onset of diagnosis of multiple myeloma (i.e., increase early diagnosis) from two years to less than six months in Nigeria. To imbibe MM screening culture among the targeted audience, as evidenced by an increase in the number of target audience presenting for the routine periodic bone marrow cancer screening test in Nigeria. This will be achieved through surveillance (Bone marrow cancer screening registry in every hospital). To increase the number of health institutions where bone marrow cancer screening test policies have been implemented. This campaign will be Specific (MM), Measurable (a goal obtainable campaign with a minimum of three years expected time of completion), Achievable by all

stakeholders, Realistic, Time-bound (i.e., about three years), and Ethical (no intention to do any harm or violate human rights).

CONCLUSION

The public health campaign on awareness and screening for MM is expected to improve the knowledge base of the targeted population and health care providers especially the orthopedic surgeons . It will create attitudinal changes both in perceptions and in behavior; enshrine MM screening policy in all health institutions in Nigeria. This will ultimately improve the quality of life and average life expectancy of the population. It is strongly recommended that cancer specialties can leverage on this framework to improve on cancer surveillance and database in Nigeria and the global community.

REFERENCES

- [1] World Health Organization. *Health promotion*. Ottawa: World Health Organization; 2018. Available from: http://www.who.int/topics/health_promotion/en/ [Accessed 24 May 2018].
- [2] Green L, Kreuter M. *Health program planning: An educational and ecological approach*. 4th ed. New York: McGraw-Hill; 2005.
- [3] Parker J C, Thorson E editors. *Health communication in the news media landscape*. New York, NY: Springer Publishing Company; 2009.
- [4] Laureate Education, Inc. (Executive Producer). *Introduction to communications, marketing, and public relations for public health leaders*. Baltimore, MD: Author; 2011
- [5] International Myeloma Working Group. *Criteria for the classification of monoclonal gammopathies, multiple myeloma and related disorders: a report of the International Myeloma Working Group*. *Br J Haematol*. 2003;121(5):749–757.
- [6] Parkin DM, Whelan SL, Ferlay J, Teppo L, Thomas DB. *Cancer in Five Continents*. Vol. VIII. Lyon: IARC; 2002. IARC Scientific Publication No. 155.
- [7] Parkin DM, Bray F, Ferlay J, Pisani P. *Global cancer statistics, 2002*. *CA Cancer J Clin*. 2005;55(2):74–108.
- [8] Nwabuko CO, Nnoli MA, Igbigbi EE. *Plasma cell myeloma: challenges in diagnosis in sub-Saharan Africa*. *Jokull J*. 2015;65(1):254–266.

- [9] Fasola FA, Eteng K, Akinyemi JO. Multiple myeloma: challenges of management in a developing country. *J Med Med Sci.* 2008;397-403.
- [10] Nwabuko CO, Nnoli MA, Okoh DA, John EJ, Chukwuonye II. Survival outcome of multiple myeloma patients on chemotherapeutic regimens in the Niger-delta Nigeria. *Int J Recent Sci Res.* 2015;6(6):4889-4893.
- [11] Odunukwe NN, Madu AJ, Nnodu EN, et al. Multiple myeloma in Nigeria: A multi-centre epidemiological and biomedical study. *Pan African Medical Journal.* 2015; 22: 292. doi: 10.11604/pamj.2015.22.292.7774.
- [12] Nwabuko O, Igbigbi E, Chukwuonye I, Nnoli M. Multiple myeloma in Niger Delta Nigeria: complications and the outcome of palliative interventions. *Cancer Management and Research.* 2017;189-196. Available from: <http://www.dovepress.com/doi.org/10.2147/CMAR.S126136>
- [13] Altekruse SF, Kosary CL, Krapcho M [webpage on the Internet]. SEER Cancer Statistics Review. 1975-2007. Bethesda: National Cancer Institute; 2010. Available from: seer.cancer.gov/statfacts/html/mulmy.html. Accessed April 14, 2017.
- [14] Omoti C, Halim NKD. Plasma cell myeloma in a Tertiary Center in Niger-Delta Region of Nigeria: clinico-immunologic analysis. *Pak J Med Sci.* 2007;23(1):27-32.
- [15] National Population Census. Available from: <https://www.population.gov.ng>
- [16] Madu AJ, Ochenis S, Nwagha TA, Ibegbulam OG, Anike US. Multiple myeloma in Nigeria: an insight to the clinical, laboratory features, and outcomes. *Niger J Clin Pract.* 2014;17(2):212-217.
- [17] Glanz K, Rimer BK, Viswanath K. *Health behavior: Theory, research, and practice* 5th ed. San Francisco, CA: Jossey-Bass; 2015.
- [18] Glanz K. Perspectives on using theory. In: *Health Behavior and Health Education Theory, Research, and Practice.* San Francis: Jossey-Bass; 2002.
- [19] Doumit M, Fares M. Knowledge of Women Towards Breast Cancer in Lebanon. *Amer J Hematol Oncology.* 2017;13(7):21-28.
- [20] Central Intelligence Agency. The world fact book; 2017. Available from: <https://www.cia.gov/library/publications/the-world-factbook/index.html> [Accessed 19 February 2018]
- [21] Thomas RF. Six Components Necessary for Effective Public Health Program Implementation. *American Journal of Public Health.* 2014; 104 (1): 17-22.
- [22] Britt R, Hatten K, Chappus S. Perceived behavioral control, intention to get vaccinated, and usage of online information about the human papillomavirus vaccine. *Health Psychology Behavior Medicine.* 2014;2(1):52-65.
- [23] McKenzie J, Niger B, Thackeray R. *Health Promotion Programs: Planning, implementing and evaluating.* 5th ed. San Francisco, CA: Pearson Benjamin Cummings Publishing; 2009.

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