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Blueprint for health security in Nigeria by 2050: Ageing and ageing - related diseases

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Abstract

Background: Nigeria is currently populated by about 200 million people of diverse ethnic, cultural and religious inclinations. Projections estimate that the proportion and absolute number of older persons aged 60 years and above (currently about 5% of the total population) will increase to 25 million by the year 2050. Ageing of the Nigerian population has far reaching multifaceted economic, psychosocial, educational and health implications.

Situation analysis: In this paper, a scenario-based analysis is presented on the likely trajectory of health security for older Nigerians by the year 2050. Ageing – associated diseases are predominantly non - communicable (NCD) and their burden is likely to increase over the next 30 years. The combined burden of NCDs and infectious diseases (malaria, tuberculosis, HIV/AIDS, emerging and re – emerging diseases) suggest that the demand on health services (preventive, diagnostic, curative, rehabilitative and palliative care) from older persons and the elderly will increase in tandem with the growth of this segment of the population.

Conclusion: A blueprint for achieving healthy ageing for older persons by the year 2050 is presented. This encompasses set targets, strategic plans and a monitoring and evaluation scheme. Improved funding and coverage of the National Health Insurance Scheme, better pensions and retirement benefit coverage, other social schemes and policy interventions and rigorous implementation schemes are all required for achieving health security by the year 2050 with respect to ageing and ageing – related disorders.

Keywords: *Health Security; Ageing; Ageing – related Diseases; Implementation; RE-AIM Framework*

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Résumé

Contexte : Le Nigéria compte actuellement environ 200 millions de personnes d'origines ethniques, culturelles et religieuses diverses. Les projections estiment que la proportion et le nombre absolu de personnes âgées de 60 ans et plus (actuellement environ 5% de la population totale) passeront à 25 millions d'ici 2050. Le vieillissement de la population nigériane a de nombreuses facettes économiques, psychosociales, éducatives et implications pour la santé.

Analysé de la situation :- Dans cet article, une analyse basée sur des scénarios est présentée sur la trajectoire probable de la sécurité sanitaire des Nigérians âgés d'ici 2050. Les maladies associées au vieillissement sont principalement non transmissibles (MNT) et leur fardeau est susceptible d'augmenter au cours des prochains 30 ans. Le fardeau combiné des MNT et des maladies infectieuses (paludisme, tuberculose, VIH / Sida, maladies émergentes et ré-émergentes) suggère que la demande de services de santé (soins préventifs, diagnostiques, curatifs, de réadaptation et palliatifs) pour les personnes âgées augmentera en tandem avec la croissance de ce segment de la population.

Conclusion : Un plan directeur pour parvenir à un vieillissement en bonne santé des personnes âgées d'ici 2050 est présenté. Cela comprend des objectifs fixés, des plans stratégiques et un programme de suivi et d'évaluation. Un financement et une couverture améliorés du Régime national d'assurance de santé, de meilleures pensions et une meilleure couverture des prestations de retraite, d'autres régimes sociaux et interventions politiques et des régimes de mise en œuvre rigoureux sont tous nécessaires pour assurer la sécurité sanitaire d'ici 2050 en ce qui concerne le vieillissement et les troubles liés au vieillissement.

Mots - clés : *Sécurité sanitaire; Vieillissement; Maladies liées au vieillissement; Mise en œuvre; Cadre RE-AIM*

Introduction

Globally, populations are ageing rapidly in most countries [1]. In 2015, older persons (aged 60 years and above)(1), accounted for 12.3% (901 million) of the global population [1]. However, by 2050, this estimate is expected to increase to 21.5% (1.4 billion), and about 80% of these elderly individuals will be resident in low- and middle-income countries (LMIC) including Nigeria [1]. Nigeria is the most populous country in Africa and the seventh most populous in the world [2]. By the year 2050, the number of older persons in Nigeria is expected to increase to 25.2 million from the current 8.2 million [3].

Ageing presents both challenges and opportunities. Old age is a delicate period in the lives of individuals and family members. Apart from the associated decline in health, and increased morbidity and mortality, in many LMICs such as Nigeria there is also poor provision of care and support for the elderly. In many parts of the world, individuals aged 60 years and above are experiencing increased life expectancy. For instance, in many high income countries (HIC) older persons are expected to live at least 20 years more. Expectations however are that this should be with minimal disability and suffering. However, in many instances particularly in LMIC such as Nigeria, this is usually not the case. As such, adequate provision for the increasing needs of older persons will place higher demands on existing health resources [4].

Ageing is also associated with a number of social, health and economic implications. For instance, many individuals have multiple morbidities and are frail. Furthermore, ongoing demographic changes as a result of rural-urban migration, modernization and increased number of women in the work force has led to a drastic reduction in the availability of care givers for the elderly and increasing caregiver burden where available. Also, the prevailing high level of youth unemployment, migration abroad in search of greener pastures, the volatilities of an 'economy in transition' further compound the problem in Nigeria. Older persons are often economically disempowered with unpaid gratuities and pensions and inconsistent flow of support from the children and family members [5,6]. There are, however, demographic dividends of population ageing including the fact that older persons are a repertoire of wisdom as well as a source of support for the family in terms of their care giving contributions. Furthermore, particularly in the African setting, older persons are critical in conflict resolution and also play important active roles and in fact validate cultural ceremonies such as weddings, funerals and naming ceremonies. Therefore, investments in *'healthy ageing'* will enable individuals to live both longer and healthier lives and contribute more to society [3,4].

Ageing and ageing-related diseases in Nigeria: Situation analysis

Nigeria currently has an estimated population of 198 million individuals, 5% (7 million) of whom are 60 years and above. By 2050, the population of Nigeria is projected to be 278 million while the number of people aged above 60 years in the country is expected to increase to 26 million) [1].

There is paucity of information on ageing research in Nigeria and available research data are yet to address a number of issues including care giving provisions, burden and social support and other relevant provisions for care and support of the elderly. Available evidence also reveals that there are a number of challenges which need to be addressed in order to tackle the current issues among this vital segment of the population.

A few hospital and community - based studies documenting the morbidity and mortality pattern of older persons have been undertaken in Nigeria (5-14). Findings from these studies suggest a double burden of communicable and non-communicable diseases, although there is a dominance of non - communicable chronic diseases among Nigerian older persons. The commonest chronic diseases include hypertension and hypertension-related complications (such as stroke, chronic kidney disease), diabetes mellitus and musculoskeletal problems. Alzheimer's disease and other neurodegenerative diseases including Parkinson's disease as well as vascular cognitive disorders are also securing greater attention in the profile of morbidities seen among elderly Nigerians. Multi-morbidities are particularly common with the number increasing with older age [4] (Table 1).

There is paucity of appropriately powered community - based data on the health profile and outcomes of elderly Nigerians. Available uneven and limited data suggest that elderly people in Nigeria share similar non-communicable disease profiles with Western populations. The prevalence of risk factors such as hypertension and diabetes as well as attendant complications (such as stroke, heart failure and kidney disease) diabetes mellitus, musculoskeletal problems and depression. Alzheimer's disease and other neurodegenerative diseases including Parkinson's disease as well as vascular cognitive disorders are also securing greater attention in the profile of morbidities seen among elderly Nigerians Infectious disease burden of HIV/AIDS is also high in the country, though data is sparse in the elderly.

Table 1: Morbidity profile of older persons in Nigeria from selected studie

Study	Author/year	Site	Objectives	Results
Psychiatric morbidity in elderly patients admitted to non psychiatric wards in a general/teaching hospital in Nigeria(5)	Uwakwe/2000	Nnewi/2000/Hospital	To determine the mental morbidity rate and types of disorders in elderly patients admitted to non psychiatric wards	Mental morbidity rate of 45.3%. Depression was the commonest morbidity.
The pattern of psychiatric disorders among the aged in a selected community in Nigeria(6)	Uwakwe/2000	Uwan, Benin / 2000/ community based	To define thecommon mental disorders in elderly Nigerian subjects living at home in Edo state (Nigeria).	The overall rate of major mental disorders was 23.1%, with depression constituting 79% of all the diagnoses. Specific dementia disorders were not found in any of the subjects (*N*=164), but 20.7% complained of forgetfulness.
Functional Disability in Elderly Nigerians: Results from the Ibadan Study of Aging(7)	Gureje/2006	Ibadan/2005/Community-based	To assess for disability in activities of daily living and instrumental activities of daily living.	Prevalence of disability was 9.5%. Chronic pain, female sex and urban living were major predictors
Health needs assessment and determinants of health-seeking behaviour among elderly Nigerians: A house-hold survey(8)	Abdulraheem/2007	Ilorin/2004/Community	To assess determinants of health seeking behavior in the elderly	The most frequently reported illnesses were body pain (89.5%), joint pain (86.4%), generalized body weakness and fatigue (81.5%)
Morbidity Pattern among the Elderly Population in a Nigerian Tertiary Health Care Institution: Analysis of a retrospective study(9)	Abdulraheem/2008	Ilorin/2005/Hospital based	To document the pattern of morbidity and healthcare utilization among hospital elderly patients.	The average morbidity per person was 1.83 ± 1.56. Musculoskeletal problems were the most frequent morbidity
Morbidity pattern amongst elderly patients presenting at a primary care clinic in Nigeria(10)	Adebusoye/2011	Ibadan/2005/Hospital based	To describe the morbidity pattern of elderly patients presenting at the General Outpatients Clinic of the University College Hospital, Ibadan, Nigeria.	The most prevalent morbidities were hypertension (40.0%), cataracts (39.4%) and osteoarthritis (26.8%).

Study	Author/year	Site	Objectives	Results
Prevalence of Cardiovascular Risk Factors in the Middle-Aged and Elderly Population of a Nigerian Rural Community(11)	Ejim/2011	Imezi-owa,Enugu/2009/ community based	To estimate the prevalence of major cardiovascular risk factors in both men and women aged 40–70 years.	Prevalence of CVD risk factors, hypertension, diabetes, obesity was highest in subjects aged 65 to 70 years.
Incidence of and Risk Factors for Dementia in the Ibadan Study of Aging(12)	Gureje/2011	Ibadan/2004/Community based	To describe the incidence of dementia in a representative sample of elderly Yoruba Nigerians and provide information about the risk factors.	The estimated incidence of dementia was 21.85 per 1,000 person years. Greater incidence of dementia was found with more rural residence and poorer economic status.
Contribution of noncommunicable diseases to medical admissions of elderly adults in Africa: a prospective, cross-sectional study in Nigeria, Sudan, and Tanzania (13)	Akinyemi/2014	Abeokuta/2012/Hospital-based	To describe the nature of geriatric medical admissions to teaching hospitals in three countries in Africa (Nigeria, Sudan, Tanzania) and compare them with data from the United Kingdom	Noncommunicable diseases (NCDs) accounted for 81.0% (n=708) of admissions (n=874), and tuberculosis, malaria, and the human immunodeficiency virus and acquired immunodeficiency syndrome accounted for 4.6% (n=40). Cerebrovascular accident (n=224, 25.6%) was the most common reason for admission, followed by cardiac or circulatory dysfunction (n=150, 17.2%). Rates of hypertension were remarkably similar in the United Kingdom (45.8%) and Africa (40.2%).
A descriptive study of the morbidity pattern of older persons presenting at a Geriatric Centre in Southwestern Nigeria (14).	Cadmus/2017	Ibadan/2012-2013/Hospital-based	This study described the morbidity profile and its determinants among persons aged 60 years and above who presented at an established geriatric centre in southwestern Nigeria	More than a half, 2919 (59.7%), of the respondents were females and almost three quarters 3501 (71.7%) were aged between 60 and 74 years. Mean number of morbidities was 1.81 ± 0.9, and less than half, 1097 (42.0%), presented with only one morbidity, most commonly, hypertension. There were significant age-related differences for musculoskeletal ($P = 0.001$), endocrine ($P = 0.01$), and psychological problems ($P = 0.01$).

Table 2: Ageing and ageing-related diseases in Nigeria : SWOT Analysis

Strengths	Weaknesses
Predominantly young population Population Diversity Natural Resources	Corruption Differentials in values and belief systems Erosion of family system Diminished primary care givers Poor political will Low pension and retirement benefit
Opportunities Growing interest in Geriatrics and Gerontology Economic Growth Policy Initiatives	Threats Political and Ethnoreligious conflicts Low manpower for geriatric health Inadequate Economic Empowerment Inadequate NHIS coverage Implementation challenges Poor economic empowerment

Nigeria operates a three -tier system of healthcare delivery viz: primary, secondary and tertiary health care. As of 2016, there were only 16 named centres focused on the care of the elderly in Nigeria. Most centres were in Lagos and the eastern region of the country, and only the Chief Tony Anenih Geriatric Centre at the University College Hospital, Ibadan and the Geriatric Centre at the University of Benin Teaching Hospital were identified as tertiary level -based centres. Access to healthcare services by older persons is also limited by the high prevalence of poverty among older persons in Nigeria.

In addition to the paucity of infrastructure for the care of the elderly, human resource for healthcare of older persons is limited. Geriatric services and training are currently limited, but the new curriculum for the training of medical doctors containing modules on ageing and ageing-related disorders has been adopted by the National Universities Commission for implementation across all medical schools in Nigeria. Postgraduate medical colleges are also developing programmes for specialty training in geriatrics.

Although several health policy drafts have been drawn up in Nigeria from 1988 till date, issues relating to ageing and care of older persons have never received dedicated attention in any of the drafts. Nigeria has also been a signatory to a number of regional and global health policy action plans and documents. However, there has been poor implementation of existing policies. This is largely due to poor political will, poor definition of responsibility, intersectoral disputes and struggle for supremacy, as well as poor funding. The new plan for 1% Health Care Funding for care of the elderly is a welcome development in this regard. Table 2 below highlights the strengths, opportunities, weaknesses and threats of ageing and ageing -related diseases in Nigeria.

Achieving optimal healthy ageing for older persons in Nigeria: Forecast to 2050

By the year 2050, sub-Saharan Africa and Asia will be the regions with the highest number of older persons globally [1]. Nigeria is expected to be the third most populous country in the world [1]. As such, there are projected demographic and economic changes in Nigeria which will influence patterns and provisions of care for the elderly. For instance, increase in the non-mineral sector of the country with reduced reliance on crude oil which will reflect on the nation's overall wealth index. Furthermore, if the existing trend persists, it is expected that there will be an increase in both the absolute number of older persons in the country as well as the proportion they constitute within the population.

Success in public health interventions such as vaccines especially for malaria and HIV by the year 2050 will significantly reduce the burden of infectious diseases. As such, trends of NCDs as well as concurrent multiple morbidities will continue. Furthermore, available research in recent times suggests that trends such as higher proportion of diseases from hypertension, diabetes and musculoskeletal problems is already mirroring the ongoing trends in HIC [13]. Studies have also revealed that presently, over 25% of individuals aged 40 years and above have hypertension [15]. In addition, only 25 % of those with the disease are aware of their condition while yet a similar proportion are on any form of medication for treatment [15].

There are expected changes in the environment such as overcrowding, higher levels of pollution, housing difficulty as well as changes in the terrain of waste with higher e - waste generation. All of these changes are expected to culminate in a change in the profile of present and emerging diseases. Lastly, by the year 2050, it is expected that Nigeria would have entered the degenerative phase of epidemiological transition [16,17].

Advancement in technology in 2050 will enhance access to health through e – health solutions and telemedicine, however, access and utility may be uneven. Personalized medicine [18] and anti-ageing genetic engineering will probably become realities globally, although there might be a barrier of access because of their prohibitive costs. Rehabilitation medicine will have progressed and end of life issues will assume different dimensions depending on the religious and cultural context as well as the prevailing thought systems at the time [19].

Short, medium and long term targets, plans with deliverables

Goal

The overall goal of this effort is "To achieve healthy ageing for all older persons in Nigeria through the provision of adequate, social, economic and physical support so older persons will have good quality of life and subjective well being". This is in synchrony with the WHO definition of Health as well as the primary goal of the WHO global strategy and action plan on ageing and health [20].

Targets

1. To increase focus on ageing and health in all health ministries and institutions across Nigeria
2. To develop, adopt and implement a national strategy on ageing in keeping with the tenets of healthy ageing
3. To increase support for the development of age - friendly rural and urban communities in Nigeria.
4. To develop and adopt long term care policy / framework for older persons in the country
5. To design and obtain relevant nationally representative data on health status needs of the elderly in Nigeria to inform necessary targeted action
6. To establish and multiple, nationally representative cohort /longitudinal surveys on health status of older persons in Nigeria

Table 3 above outlines the short, medium and long term plan towards the actualization of the set targets as well as the deliverables to gauge outcomes. The implementation of the outlined plan of action in this blueprint will utilize the social ecological model (SEM)(21) : a) individual (knowledge, attitude and skills); b) interpersonal (families, friends, social networks) ; c) organizational (workplaces, schools, social institutions) d) community (physical and social environment); e) societal (broad social policy, economic and legal context) to implement novel, context-relevant and culture-appropriate interventions.

Monitoring and evaluation of targets: The RE – AIM Model

In order to monitor the effective implementation of the outlined plans of the blueprint, a global evaluation tool will be applied. The RE-AIM model (Reach, Effectiveness, Adoption, Implementation, and Maintenance) is used to systematically evaluate interventions of projects of public health significance [21]. The principle have been applied across a wide array of implementation science projects including policy initiatives. The use of RE-AIM enhances the quality of interventions as well as the overall and specific activities of the project. We will use the "hybrid approach" that is guided by pragmatic decisions regarding which strategies deserve more thorough RE-AIM evaluation and which are best evaluated using one or two RE-AIM dimensions" described by Glasgow and colleagues [22]. This overall evaluation will help not only with evaluating the programm of activities, but also to document the training components accross appropriate audience. Table 4 highlights the component units of the RE-AIM model and how they can be used to monitor outcomes [22-24].

Conclusion

There are ample opportunities exist especially with regards to capacity building, training of health care workers in ageing related fields. Furthermore, multi-national networking and support to tackle ageing - associated challenges, the estimated rate of ageing in the country and the projected near quantal increase of the elderly as a proportion of the population, means that Nigeria and indeed Africa may have to confront these challenges earlier than was the case with developed countries. More funding is therefore required to drive the implementation of a Universal Health Coverage plan with the elderly featuring prominently. Expansion of the current Health insurance scheme to adequately cover the disproportionately high cost of NCDs care in the

Table 3: Targets, plans and deliverables towards achieving optimal healthy ageing for older persons in Nigeria.

Target	Plan			Deliverables/Outcomes
	Short Term	Medium Term	Long Term	
To increase focus on ageing and health in all health ministries and institutions across Nigeria	Organize workshops and other short term training programmes Incorporate geriatrics and gerontology into undergraduate and postgraduate medical curriculi	Capacity Building through appropriate avenues including workshops, Masters degree programmes and PhD to raise more geriatricians and gerontologists	Regular review and adoption of geriatric sub-specialty in post-graduate medical collegesHave independent departments of geriatrics in medical institutions and units in the ministries of health	Increased number of geriatricians and gerontologists Have at least 100 geriatricians in Nigeria over the next 20 years
To develop, adopt and implement a national strategy on ageing in keeping with the tenets of healthy ageing	Develop a national policy on ageing and health, including rehabilitation, palliative care and end -of-life issues.	Adopt policies and innovations which promote healthy ageing Promoting community- based car and, rehabilitation.	Provide an enabling environment to promote healthy ageing.	Increase in proportion of older persons said to be undergoing "Healthy Ageing" and self perception of subjective well being.
To increase support for the development of ageing - friendly rural and urban communities in Nigeria.	Initiateintersectoral action on older persons and other relevant stake holders in age friendly environments in Nigeria	Disseminate and translate findings from research for policy and practice including dealing with housing, food, water and financial security	Provision of ageing- friendly environments in both rural and urban setting including community-based care arrangements, palliative care and end -of -life issues.	Proportion of communities said to be ageing-friendly based on established criteria.
To develop and adopt long term care policy /framework for older persons in the country	Conduct relevant research on long term care needs of older persons in Nigeria	Develop necessary framework to facilitate provision of care, especially community-based care	Modify and adopt relevant policies in this regard	Increased availability of long term care in desired space for all older persons in Nigeria
To design and obtain relevant nationally representative data on health status and needs of the elderly in Nigeria to inform necessary targeted action	Identification of cohort populations in all six geopolitical zones of Nigeria and developing programmes of longitudinal follow up studies	Setting up surveillance site (mapping, listing, conduct baseline survey) for subsequent longitudinal enquiry	Develop new birth cohorts for subsequent studies	Availability of multiple, relevant longitudinal data sets on health status and needs of the elderly in Nigeria

Table 4: RE-AIM Model and dimensions

Dimension	
Reach	Number, percentage and representativeness of eligible patients who participated in the intervention .Is the intervention reaching the target population? Those most in need?
Effectiveness	Intervention effects on targeted outcomes. .Does the intervention accomplish its goals?
Adoption	Number, percentage and representativeness of participating settings and providers .To what extent are those targeted to deliver the intervention participating?
Implementation	The extent to which the intervention was consistently implemented by staff members
Maintenance	The extent to which an intervention becomes parts of routine organizational practices, and maintain effectiveness.

Glasgow, www.re.aim.org

elderly is also urgently needed. Commitment at other sectoral levels is also required to raise the standard of health for the elderly especially via social support schemes, improved pensions and retirement benefit coverage, legislative and jurisprudential interventions against ageist societal and organizational tendencies as well as creation of 'third places' for health promotion, rehabilitation, end -of -life issues and palliative care.

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