



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Improving Non-Communicable Disease Management And Outcomes In Nigeria

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Abstract

Evidence reveals that non-communicable diseases (NCDs) such as hypertension, stroke, diabetes, chronic kidney disease, osteoarthritis, chronic obstructive pulmonary disease and cancer are on the rise in low- and middle-income countries like Nigeria. Despite these realities, management of non-communicable diseases in Nigeria faces a lot of huddles that have hitherto resulted to poor management and outcomes from these diseases. This study sought to describe the various challenges encountered and the recommendations made by stakeholders on how to improve the management and outcomes of NCDs in Nigeria. A cross sectional survey of stakeholders was carried out across twelve of the thirty-six states and the Federal Capital Territory in Nigeria. A Google survey questionnaire which was designed after a scoping review and pre-tested was used to collect responses from the stakeholders. Data obtained from them were grouped into identified and prevalent themes which were transcribed for data analysis using the Statistical Package for Social Sciences (SPSS) Windows version 26. A total of three hundred and ninety-six stakeholders (n = 396) with a mean age of 32.6 ± 7.8 and male: female ratio of 1.5:1 was recruited into the study after consent was obtained from them. Respondents participated in the study by filling in an online questionnaire designed for the study. The result showed that 291 (73.5%) of the respondents agreed that Nigeria has the capacity to improve NCDs management and outcomes while the remaining 105 (26.5%) had a contrary opinion. Key challenges stated by the stakeholders are lack of access to quality health care services by 92(23.2%), lack of expertise on current innovations in healthcare by 56(14.1%) while 49(12.4%) stated that the healthcare system in Nigeria is weak and this affects the management of NCDs in the country. Major recommendations offered by participants are government and private sector commitment to improve access to quality healthcare and effective management of NCDs by 51(12.9%), provision of state-of-the-art medical equipment by 43(10.9%), and health systems strengthening interventions by 29(7.3%). At 95% Confidence Interval, $P < 0.05$, $X^2 = 3.167$, $Df = 1$, $P - \text{value} = 0.0751$ and , there was no statistical significant difference between respondents statement on the potential to improve NCD management and outcomes in Nigeria and gender and educational qualification of respondents respectively. A holistic and timely implementation of these measures is key towards improving the management and outcomes of NCDS in Nigeria.

Key Words: Non-communicable Disease, Management, Outcomes, Health Systems Strengthening, Innovations in Healthcare, Government Commitment, Nigeria, Stakeholders

Introduction

Epidemiological transition from communicable (infectious) to non-communicable (degenerative) diseases as the major cause of death in developing nations is a reality, health experts are to deal with in the 21st century (Boutayeb, 2006; Yaussy et al., 2023). Non-communicable diseases (NCDs) are the leading cause of death globally, and according to the World Health Organization (WHO, 2023a), an estimated 41 million deaths occur yearly as a result of NCDs, and this corresponds to almost three quarter (74%) of all global deaths. In Nigeria, the prevalence of NCDs have increased over the decades and accounts for 24% of all deaths in the country (WHO, 2017). The diseases which include cardiovascular diseases, diabetes, cancers, and respiratory disorders resulted to 22% of premature death in Nigeria among persons aged 30 – 69years and above (WHO, 2018).

An interplay of various factors has been associated with the rise in NCDs in Nigeria and other low-and middle-income countries (Idris et al., 2020; WHO, 2023). Adoption of western lifestyle and exposure to certain risks factors have contributed to the high prevalence of NCDs in these countries. Lifestyle such as excessive alcohol consumption, smoking, poor eating habits (high salt intake and low fruit consumption) and lack of exercise that results to obesity are modifiable factors of NCDs in Nigeria while genetic factors and being a male are the non-modifiable factors that predispose individuals into developing NCDs (WHO, 2015; Budreviciute et al., 2020; Adeloje et al., 2019).

The timely management of NCDs which involves early detection, screening and timely treatment of these diseases, and palliative care for those in need is key towards effective control and improved outcomes during treatment (WHO 2023b). Addressing this epidemic that has now made nations to face the double burden of diseases which has brought pressure to stakeholders on setting priorities and appropriately allocating scarce resources to be on tract in reducing the burden of these diseases (Gutiérrez-Delgado & Guajardo-Barrón, 2009; WHO, 2023b).

The impact of poor management of NCDs in Nigeria are many and worrisome. The Centre for Disease Control and Prevention (CDC, 2021) noted that NCDs have devastating impacts on individuals' financial security and national economic growth and development. In low- and middle-income countries, NCDs usually affect people during their most productive years and predispose several families to impoverishing health expenditure and poverty cycle following out-of-pocket payments for NCDs management which are often expensive (Knaul et al., 2012; Odunyemi et al., 2023). When individuals with NCDs face tremendous healthcare costs and a restricted ability to work, households struggle with increased financial risk (Sharma et al., 2023). These high healthcare expenses and reduced productivity strain developing economies and impede social and economic development (CDC, 2021).

Another impact of poor management of NCD is the preference for medical treatment abroad by both elites and non-elites which has resulted in a culture of medical tourism (Adeoye, 2023). An estimated 500 Nigerians travel monthly for medical treatment abroad. The cost implication of this tourism is perplexing and runs to the tune of billions of dollars (\$1.6 billion) annually (Federal Government of Nigeria, 2022). This amount constitutes about 20% of the total health expenditure in the country (PwC, 2021). To the health systems, medical tourism continues to negate health investment which in turn results to diminished service delivery with those in the lower wealth quintiles more affected than others (Abubakar et al., 2018).

The depreciation of foreign reserves and devaluation of a countries currency like it is happening in Nigeria is another example of the impact of poor management of NCDs in the country. This has in no doubt resulted in increasing the gap to Universal Health Coverage in the nation.

Based on these impacts amongst others, global and national policies have been designed to control and manage NCDs across countries in the world. According to the United Nations (2018), The 2030 Agenda for Sustainable Development recognizes NCDs as a major challenge for sustainable development. As part of the 2030 Sustainable Development Agenda, Heads of State and Government pledged to develop ambitious national responses to reduce by at least one-third premature deaths due to NCDs. To understand the World Health Organization (2003) recommended the “STEPS” approach for monitoring trends within and across countries. As part of its efforts to improve management outcomes in Nigeria, the National Policy and Strategic Plan of Action on Prevention and Control of Non-Communicable Diseases (NCDs) in Nigeria was designed in 2023 with the adoption of this policy in the just concluded 64th National Council on Health held in Ekiti State (Federal Ministry of Health and Social Welfare, 2023).

The time to address this challenge is overdue and unfortunately, Idris et al. (2020) noted that the country’s health system is weak to provide the needed medical care that is based on recent innovations in non-communicable disease management. According to the authors, there is limited equipment and infrastructure to effectively manage NCDs in the country. The absence of equipment and infrastructure is worrisome as the government have failure to invest adequately in health (Olukoya, 2017).

Can the healthcare system in Nigeria be improved upon to provide quality care in the management of non-communicable diseases in the country for improved outcomes? This question is largely unanswered. This study therefore sought to determine stakeholders’ recommendations on measures to improve non-communicable disease management and outcomes in Nigeria.

Method

A cross sectional survey was employed for this study which targeted healthcare workers and support staff that works in hospitals, Health Management Board, Federal Ministry of Health, State and National Primary Healthcare Development Boards, Universities and School of Nursing staff across the 12 States of the 36 states and the Federal Capital Territory in the six geopolitical zones in Nigeria. Two states per region were randomly selected for the study to ensure adequate representation of respondents across the country. Nigeria is the most populous black nation in the world and the most populous country in Africa accounting for almost half of the population in West Africa with an estimated population of 202 million (The World Bank, 2023). The country is a multi-ethnic nation endowed with several natural and human resources but continues to be plagued by economic hardship and insecurity in some Northwest and Northeastern States which has adversely affected the development of the nation. Map of Nigeria showing the six geopolitical zones is shown in figure 1 below.

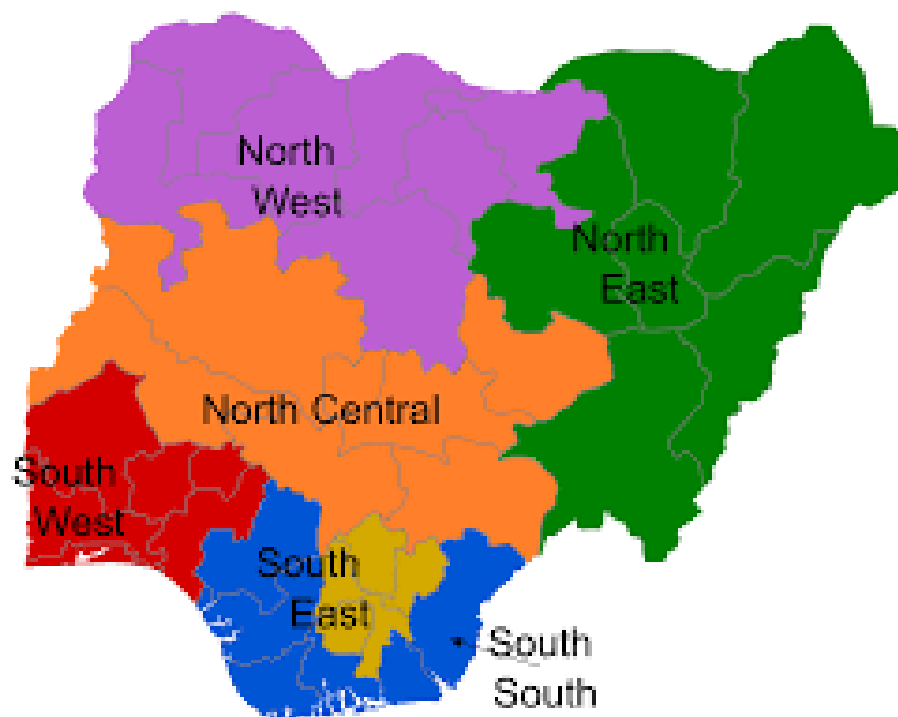


Figure 1: Map of Nigeria with the Six Geopolitical Zones

Data collection from participants involved the design of a survey questionnaire using a Google Sheet which was based on a prior scoping review on strategies to improve management and outcomes of non-communicable diseases in Nigeria. The questionnaire has four sections – A, B, C and D which deals with the socio-demographic characteristics of the respondents, potential for improving management and outcome of NCDs in Nigeria, challenges in the management of NCDs and recommendations to improve the management and outcomes of NCDs in Nigeria respectively. The online questionnaire was first pre-tested with ten questionnaires and confirmed to be suitable for the study and this was vetted by two experts in Public Health in Novena University Ogame, Delta State Nigeria. We then trained 12 focal persons with health background across 12 of the randomly selected states on stakeholder engagement and distribution of the questionnaire to key stakeholders whose opinions was sought and information on the subject was obtained. The trained data collectors then proceeded to send anonymous emails to targeted healthcare workers after prior request and obtaining consent to participate in the study. Sample size calculation was done using an online sample size calculator with a target population of 400,000 estimated health workers in Nigeria (Punch, 2023), a minimum sample size of 384 was obtained. The link to the sample size calculation is herein: <https://www.calculator.net/sample-size-calculator.html?type=1&cl=95&ci=5&pp=50&ps=400000&x=Calculate>. We calculated a 10% attrition rate and targeted a total of 422 persons but finally received complete data from 398 which was used as the total sample size (n) for the study. Data was collected over a period of one month from November 1st 2023 to December 1st, 2023. Following the attainment of more than the target sample size, the form was stopped from collecting more

data and the excel sheet which has the various data for the study was downloaded. The responses were reviewed and identified into themes that were coded into the Statistical Package for Social Sciences (SPSS) Windows version 26 for analysis. Descriptive statistics were obtained using frequency and percent which are presented into tables based on the four sections of the questionnaire.



Results

Table 1: Socio-demographic Characteristics of Respondents (n = 396)

S/N	Variable	Frequency (f)	Percent (%)
1	Gender: Male Female	237 159	59.8 40.2
2	Marital Status: Single Married Divorced	193 200 3	48.7 50.5 0.8
3	Social Class: Poorest Poor Middle Class Rich Wealthy	2 28 311 35 20	0.5 7.1 78.5 8.8 5.1
4	Highest Level of Education: Secondary Diploma BSc/Eq. Master PhD	9 43 226 103 15	2.3 10.9 57.1 26.0 3.9
5	Religion: Christianity Islam African Traditional Worshipper	304 89 3	76.7 22.5 0.8
6	Ethnicity: Hausa Igbo Yoruba Ijaw Kanuri Others	59 74 79 60 18 100	14.9 18.7 19.9 15.2 4.5 25.3
7	Professional/Rank Administrative Officer Community Health Worker Consultant Physician Director Epidemiologist Lecturer Manager Medical Officer Nursing Officer Nutritionist Pharmacist Physiotherapist Professor Scientist Support staff	13 27 8 70 5 7 24 64 73 4 6 3 2 10 80	3.3 6.8 2.0 17.7 1.3 1.8 6.1 16.2 18.4 1.0 1.5 0.8 0.5 2.5 20.2

Table 1 shows the socio-demographic distribution of the respondents across the six geopolitical zones of Nigeria. 237 (59.8%) are male while 159 (40.2%) are females; 193 (48.7%) are single, 200 (50.5%) are married while 3 (0.8%) are divorced; 2 (0.5%) belong to the poorest social class (wealth quintile), 28 (7.1%) are poor, 311 (78.5%) are middle class, 35 (8.8%) are rich while 20 (5.1%) are wealthy; 9 (2.3%) had secondary education, 43 (10.9%) have Diploma, 226 (57.1%) have BSc. Or Equivalent, 103 (26.0%) have master while 15 (3.9%) have PhD. 304 (76.7%) are Christians, 89 (22.5%) are Muslims while 3 (0.8%) are African Traditional religion worshippers; 59 (14.9%) are Hausa, 74 (18.7%) are Igbos, 79 (19.9%) are Yorubas, 60 (15.2%) are Ijaws, 18 (4.5%) are Kanuris while 100 (25.3%) belong to other ethnic nationalities; 13 (3.3%) are administrative officers by profession /rank, 27 (6.8%) are community Health extension workers, 8 (2.0%) are Consultant Physicians, 70 (17.7%) are Directors, 5 (1.3%) are epidemiologists, 7 (1.8%) are Lecturers, 24 (6.1%) are managers, 64 (16.2%) are Medical officers, 73 (18.4%) are Nursing Officers, 4 (1.0%) are Nutritionist, 6 (1.5%) are Pharmacists, 3 (0.8%) are Physiotherapist.

Table 2: Potential to Improve NCDs Management and Outcomes in Nigeria

Statement	Frequency (f)	Percent (%)
Nigeria has the capacity to improve NCD Management outcomes to address medical tourism:		
Yes	291	73.5
No	105	26.5
Total	396	100.0

Table 2 shows stakeholders' perception of the potential to improve NCDs Management outcomes in Nigeria. 291 (73.5%) agreed that Nigeria has the capacity to improve NCDs Management outcomes in Nigeria while 105 (26.5%) do not see such capacity in Nigeria.

Table 3: Challenges in Non-Communicable Disease Management in Nigeria

S/N	Variable	Frequency (f)	Percent (%)
1	Corruption	2	0.5
2	Government and Donor Sponsorship of medical tourism	11	2.8
3	High cost of treatment for NCDs with no Insurance	5	1.3
4	Lack of access to quality healthcare	92	23.2
5	Lack of expertise on current innovations in healthcare	56	14.1
6	Lack of adequate infrastructure	4	1.0
7	Lack of modern medical equipment	17	4.3
8	Lack of steady power supply	4	1.0
9	Lack of quality and current medicines	6	1.5
10	Preference for treatment abroad	18	4.5
11	Weak healthcare system	49	12.4
12	Poor No response	127	32.1
13	Poor remuneration of Health workers	5	1.3
Total		396	100.0

Table 3 shows the challenges experienced in non-communicable disease management in Nigeria. 2(0.5%) highlighted corruption, 11 (2.8%) stated Government and donor support to medical tourism, 5 (1.3%) stated high cost of treatment for NCDs with no insurance, 92 (23.2%) stated lack of quality healthcare for management of NCDs, 56 (14.1%) stated lack of expertise on current innovations in healthcare, 4 (1.0%) decried lack of infrastructure, 17 (4.3%) noted lack of modern medical equipment, 4 (1.0%) stated lack of steady power supply, 6 (1.5%) stated lack of quality and current medications, 18 (4.5%) stated preference for treatment abroad, 49 (12.4%) stated weak healthcare system, 127 (32.1%) gave no response while 5 (1.3%) stated poor remuneration.

Table 4: Recommendations to Improve Non-Communicable Disease Management and Outcomes in Nigeria

S/N	Variable	Frequency (f)	Percent (%)
1	Health systems strengthening	29	10.9
2	Equip hospitals with state-of-the-art equipment's	43	10.9
3	Build the capacity of health care workers on the needed specializations in medicine & surgery and allied fields	16	4.0
4	Zero corruption	9	2.3
5	Declare health as a state of emergency	2	0.5
6	Ensure adequate training of students	1	0.25
7	Good remuneration of health workers	18	4.5
8	Government commitment with adequate investment into research and innovations in the management of NCDs	36	9.1
9	Government to develop and implement policies that reduce medical tourism	7	1.8
10	Improve access to quality healthcare and management of NCDs	51	12.9
11	Improve infrastructure and work conditions of healthcare workers	25	6.3
12	Learn from Europe and other countries and provide power /subsidy	5	1.3
13	Transform and market healthcare services	12	3.0
14	No response	142	7.3
Total		396	100.0

Table 4 showed strategies to improve NCD Management and outcomes in Nigeria. 29 (7.3%) stated health systems strengthening, 43 (10.9%) stated equip the hospitals with state of art equipment, 16 (4.0%) stated capacity building of healthcare workers on needed specialization in medicine, surgery and allied medicine, 9 (2.3%) stated zero corruption, 2 (0.5%) stated declaration of health as an emergency, 1 (0.25%) stated adequate training of students in medicine and other discipline, 18 (4.5%) stated good remuneration of healthcare workers, 36 (9.1%) stated Government commitment to health with adequate investment into research and innovations in the management of NCDs, 7 (1.8%) stated Government to develop policies that reduce medical tourism, 51 (12.9%) stated improvement in access to quality healthcare and management of NCDs, 25 (6.3%) stated improvement in infrastructure and work conditions of health care workers 5 (1.3%) encouraged Nigeria to learn from Europe and other countries with good policies and power supply, 2 (0.3%) stated transformation and marketing of health while 142 (35.9%) no response.

Table 5: Chi-Square Test for Potential for Improvement of NCDs and Gender of Respondents

Potential_for_Improvement	Gender		Results			
	Female	Male	Total	Difference	X ²	P- Value
No	38	37	75 (56.8%)	1	3.167	0.0751
Yes	20	37	57 (43.2%)			
Total	58 (43.9%)	74 (56.1%)	132			

Table 5 showed Chi-square test results for potential for improvement of NCDs management and outcomes in Nigeria against gender of respondents. At 95% Confidence interval, $X^2 = 3.167$, $Df = 1$, $P - \text{value} = 0.0751$, there was no statistically significant difference between the participants response on the potential for improvement of non-communicable disease management and outcomes in Nigeria and gender of the respondents.

Table 6: Chi-Square Test for Potential for Improvement of NCDs and Educational Status of Respondents

Highest_Education	Potential_to_Improve		Results			
	No	Yes	Total	Difference	X ²	P-value
Secondary	3	1	4 (3.0%)	4	5.246	0.2630
Diploma	7	11	18 (13.6%)			
BSc or Equivalent	45	25	70 (53.0%)			
Master	19	19	38 (28.8%)			
PhD	1	1	2 (1.5%)			
	75 (56.8%)	57 (43.2%)	132			

Table 6 showed Chi-square test results for participants statement on the potential for improvement of NCDs management and outcomes in Nigeria against educational status of respondents. At 95% Confidence interval, $X^2 = 5.246$, $Df = 4$, $P - \text{value} = 0.2630$, there was no statistically significant difference between the participants

response on the potential for improvement of non-communicable diseases management and outcomes in Nigeria and educational status of the respondents.

Discussion

Socio-demographics

A total of three hundred and ninety-six ($n = 396$) stakeholders in the health and allied sectors with a mean age of 32.6 ± 7.8 years were involved in the study. Participants were from all sectors in health with high and low cadre staff involved. The Male to female ratio in the study was 1.5:1 which shows a higher proportion of males than females. Our finding corroborates with the fact that Nigeria has a very youthful age group that falls in the health work force of any country and if properly harnessed will serve as a source of human resource for health to drive medical industrialization in the country (Abubakar et al., 2018; Akintayo-Usman & Usman, 2021). A keynote of target population is the fact that it consists of nurses, doctors, consultants, and administrators in the health work force whose opinion on improving non-communicable disease management and outcomes in Nigeria was sought.

Stakeholders Perception of the Potential to Improve NCDs Management and Outcomes in Nigeria

The perception of key stakeholders regarding an issue is central to their ability to drive change. According to Soludo (2010) for any nation to experience industrialization, there must be strategic vision and the capacity for government and other actors to competitively push for transformation. The result from our study revealed that almost three quarter of the stakeholder's surveyed (73.5%) belief that Nigeria has the potential to improve non-communicable disease management and outcomes while the remaining slightly more above a quarter (26.5%) had a contrary opinion. The implication of this finding is that while majority of the stakeholders in the health sector are assertive and willing to contribute towards the improvements of NCDs management and outcomes in the country, more than a quarter do not trust the health system to deliver on its mandate and such persons may seek treatment abroad. This is why it is not surprising for both elites and non-elites in the country to seek for treatment abroad for the management of medical conditions that can be handled in Nigeria as noted by Adeoye (2023). This finding is also in alignment with Oto (2013) who noted that every industrialization must be nationally determined and owned to drive the targeted goals needed for improved economic growth and development including the health and well-being of the population.

Challenges to Non-communicable Disease Management in Nigeria.

The current epidemiological transition from communicable diseases to non-communicable diseases as the most common cause of morbidity and mortality in low- and middle-income countries like Nigeria is a point of concern towards to public health and government (WHO, 2011; Yaussy et al., 2023). The need to have an effective healthcare system that can address these diseases is overdue and has consistently been hindered by a myriad of factors known to affect non-communicable disease management. Our study revealed that twelve reasons (themes identified from the study) were known to affect non-communicable disease management in Nigeria. Top on the list is lack of access to quality NCD management in healthcare facilities across the country (23.2%) which was followed by complains of

lack of expertise on current innovations in NCD management (14.1%), and a weak healthcare system (12.4%) amongst others listed in table 3 above. More worrisome is the fact that there is a preference to obtain treatment abroad than in Nigeria. A similar report was observed by Makinde et al. (2014) who opined that medical tourism is a product of several factors which include a preference to seek and obtain treatment abroad due to the presence of expertise on the condition the individual is seeking care for abroad. It is important to timely address this trend by improving the health system in the country to limit the consequences of medical tourism in Nigeria.

Another worrisome reason which corroborates with Adeoye (2023) is the fact that Government sometimes funds medical tourism. Rather than invest heavily on the healthcare system in the country, they choose to float big trips and entourage abroad with heavy financial burden on taxpayers money. These funds when invested into the country would have strengthened the weak health care system characterized by infrastructural decays, lack of modern equipment for the management of NCDs, poor remuneration of healthcare workers, lack of steady power supply for hospitals which translates to the poor access to quality management and outcomes of non-communicable diseases in the country (Epundu et al., 2017). Another aspect of the barriers is the high cost of managing non-communicable diseases in the country with no form of insurance and limited subsidy and support for the most vulnerable. This trend will surely affect Nigeria actualization of SDG 3 by 2030. It is hoped that the current government of the country with a four-point agenda on health, builds a resilient healthcare system that address this trend (Federal Ministry of Health and Social Welfare, 2023).

Recommendation to improve NCD management outcome in Nigeria.

Nigeria has the potential to improve NCDs management and outcomes in the country as earlier stated by almost $\frac{3}{4}$ of the respondents. Our findings revealed that a concerted effort from all stakeholders including the government and the private sector can result in improvement of NCDs management and outcomes in Nigeria. Thirteen themes were stated by the stakeholders whose expert opinion and views or measures to improve NCDs management and outcomes in Nigeria was sought as stated in table 4. The most resonating point is the urgent need for the government and the private sector to improve access to quality health care services and management of NCDs (12.9%) through a well-defined and strategic approach and commitments. This was followed by the need to equip hospitals in the country with state-of-the-art equipment which can revolutionize NCD management in Nigeria. Another key point was government commitment to adequately invest into health care which is in alignment with the assertions that the government is key towards driving every industrialization (Soludo, 2010). Other reasons worthy of note are the need to improve the infrastructure and work conditions of health care workers, development of policies to discourage medical tourism, build the capacity of health care workers, zero tolerance to corruption and training of students adequately to prevent incompetent health work force in the future as contained in table 4. These findings are in synchrony with previous reports by Adeoye (2023) and Epundu et al. (2017). A striking recommendation made by the stakeholders was the fact that Nigeria need to learn from Europe, Asian Tigers and other countries who have policies and perfected strategic plans on medical industrialization which they are

currently implementing with presence of steady power supply to hospital and conducive work environment that attracts best skills for smooth operations and provision of quality healthcare that meets the needs of the 21st Century.

Conclusion

The fate of NCDs management and outcomes in Nigeria is hanging on the decisions and actions the stakeholders especially government and the organized private sector makes. Majority of Nigerians believe the nation can improve on NCD management to achieve improved outcomes. Major challenges encountered in the country are lack of access to quality NCD management in healthcare facilities across the country, lack of expertise on current innovations in NCD management and a weak healthcare system. There is an urgent need to improve access to quality management and control of NCDs in Nigeria and this can be achieved through adequate investment by Government on NCD management in human resource for health on specialties which the country is lagging behind or have inadequate workforce and equipping the hospitals with state-of-the-art equipment. These measures amongst others can help to revolutionize NCD management in Nigeria in order to achieve the desired outcomes which involves a reduction in morbidity and mortality from NCDs.

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