IMPACT OF MICRO DETERMINANTS ON HOUSEHOLD HEALTH AND POVERTY IN NIGERIA

YAHAYA YAKUBU

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By

YAHAYA YAKUBU

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Doctor of Philosophy

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DEDICATION

This work is dedicated to my children, Amaturrahman, Abdurrahman, and Amatullah, for missing the fatherly care and physical affection they required in the course of my study.

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

IMPACTS OF MICRO DETERMINANTS ON HOUSEHOLD HEALTH AND POVERTY IN NIGERIA

By

YAHAYA YAKUBU

October 2018

Chairman : Associate Professor Norashidah Mohamed Nor, PhD
Faculty : Economics and Management

Health and wealth of a nation have been identified by various studies as important components of national development. Hence, they feature in different global development agenda such as the recently concluded Millennium Development Goals (MDGs) in 2015 and the current Sustainable Development Goals (SDGs). In the MDGs, developing countries were left behind and are also unlikely to achieve the SDGs, hence, the need for multi-sectoral approach to expedite actions towards achieving the SDGs. Nigeria as a developing country is not an exception in this need. This study therefore explore the impact of micro determinants on population health outcomes, reproductive health, and extreme poverty in Nigeria, being three major focal points in the SDGs.

The study uses national representative cross sectional data from the 2013 Nigeria Demographic and Health Survey, and employs the Logistic Regression Model to study the effect of the micro determinant on maternal mortality, under-5 mortality, unmet need for family planning, and extreme poverty in Nigeria.

Findings of the study reveal significant association between micro determinants and population health outcomes, reproductive health, and extreme poverty. Higher fertility and women decision making power in the household significantly increases and decreases the likelihood of maternal mortality, respectively. Parent's education and exposure to media are significant factors in reducing the likelihood of under-5 mortality, while on the contrary, fertility index (parity), short preceding birth interval, no access to electricity, and unimproved sanitation significantly increase the chances of a child dying before its fifth birthday. Women and under-5 children in the northern

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region and of Hausa/Fulani extraction are more prone to maternal and under-5 mortality, respectively.

Couple's education, exposure to family planning messages, family planning counselling, and women household decision making power significantly reduce the likelihood of unmet need for family planning. Couple's fertility measures (number of living children, desires for more children, ideal number of children, and polygyny) significantly increase the likelihood of a woman having unmet need for family planning. Women in the northern part and of Hausa/Fulani tribe are more likely to have unmet need for family planning.

Men and women's education and women household decision making power are significant important factors in reducing extreme poverty in the household. Higher fertility measured by number of household's members, no electricity, unimproved source of drinking water and sanitation increases the likelihood of extreme poverty. Households in the northern part and of Hausa/Fulani extraction are more likely to be extremely poor.

The study conclude that the worsening situation of population health outcome, reproductive health, and extreme poverty in Nigeria are associated with micro factors at individual and household levels. It therefore recommends that more policy attention and awareness campaign should be directed to addressing the relevant micro determinants at individual and household levels for timely achievement of the SDGs' health and poverty goals in Nigeria, and other national development health and poverty goals.

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KESAN PENENTU MIKRO KEATAS KESIHATAN DAN KEMISKINAN ISI RUMAH DI NIGERIA

Oleh

YAHAYA YAKUBU

Oktober 2018

Pengerusi : Profesor Madya Norashidah Mohamed Nor, PhD
Fakulti : Ekonomi dan Pengurusan

Kesihatan dan Kekayaan satu bangsa telah dikenalpasti oleh beberapa kajian adalah komponen penting dalam pembangunan negara. Maka ianya termaktub dalam agenda pembangunan global seperti di Matlamat Pembangunan Millenium (MDGs) yang baru sahaja tamat pada 2015 and di Matlamat Pembangunan Mampan (SDGs) pada masa kini. Negara yang sedang membangun serta ketinggalan semasa MDGs adalah berkemungkinan gagal untuk mencapai SDGs, oleh itu perlu adanya sumbangan dari pelbagai sektor untuk mempercepatkan progres ke arah pencapaian SDGs. Nigeria sebagai sebuah negara yang sedang membangun, tidak terkecuali dalam hal ini. Oleh itu kajian ini meneroka kesan penentu mikro ke atas hasil kesihatan penduduk, reproduktif kesihatan, dan kadar kemiskinan melampau di Nigeria.

Kajian ini mengguna data keratan rentas Negara dari Demografi Nigeria 2013 dan Kaji Selidik Kesihatan seta mengguna Model Regresi Logistik untuk mengkaji kesan penentu mikro ke atas kematian ibu, kematian bawah 5 tahun, keperluan yang tidak dipenuhi untuk perancangan keluarga, dan kemiskinan melampau di Nigeria.

Keputusan kajian menunjukkan hubungan penting antara penentu mikro dan kesihatan penduduk, reproduktif kesihatan, and kemiskinan melampau. Kesuburan yang tinggi dan kuasa wanita membuat keputusan dalam rumahtangga adalah penting samada meningkatkan atau menurunkan kemungkinan kematian ibu. Pendidikan ibu bapa dan pendedahan kepada media adalah faktor penting dalam mengurangkan kemungkinan kematian bawah 5 tahun, sebaliknya indek kesuburan (pariti), selang kelahiran yang pendek, tiada akses kepada sumber elektrik, dan sanitasi yang tiada penambahbaikan menyumbang kepada peluang yang tinggi untuk kanak-kanak mati sebelum hari jadi

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ke lima. Wanita dan kanak di bawah 5 tahun di bahagian utara dan ekstrasi Hausa/Faulani lebih terdedah kepada kematian ibu dan bawah 5 tahun.

Pendidikan pasangan, pendedahan kepada mesej perancangan keluarga, kauseling perancangan keluarga, dan kuasa untuk membuat keputusan oleh isirumah wanita penting dalam mengurangkan kemungkinan keperluan yang tidak dipenuhi untuk perancangan keluarga. Kesuburan pasangan mengukur (bilangan anak yang hidup, keinginan untuk mendapat lebih anak, bilangan anak yang ideal, dan poligami) penting dalam meningkatkan kemungkinan wanita mempunyai keperluan yang tidak dipenuhi untuk perancangan keluarga. Wanita di bahagian utara dan suku Hausa/Fulani adalah lebih berkemungkinan mempunyai keperluan yang tidak dipenuhi untuk perancangan keluarga.

Pendidikan lelaki dan wanita dan kuasa membuat keputusan oleh isirumah wanita adalah amat penting dalam mengurangkan kemiskinan melampau isirumah. Kesuburan yang tinggi diukur oleh bilangan ahli isirumah, tiada bekalan elektrik, punca air minuman dan sanitasi yang tiada penambahbaikan akan meningkatkan kemungkinan kemiskinan melampau. Isirumah di bahagian utara dan ektrasi Hausa/Fulani adalah lebih berkemungkinan mengalami kemiskinan melampau.

Kesimpulan dari kajian ini, situasi yang lebih teruk untuk hasil kesihatan penduduk, reproduktif kesihatan, dan kemiskinan melampau di Nigeria adalah berkaitan dengan faktor mikro di peringkat individu dan isirumah. Oleh itu disyorkan, lebih perhatian dan kempen kesedaran perlu diberikan kepada penentu mikro di peringkat individu dan isirumah oleh pembuat keputusan untuk mencapai matlamat kesihatan dan kemiskinan SDGs di Nigeria serta matlamat kesihatan dan kemiskinan pembangunan Negara dalam masa yang ditetapkan.

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And (remember) when your Lord proclaimed: "If ye are grateful, I will add more (favours) unto you; But if ye show ingratitude, truly My punishment is terrible indeed." (Qur'an 14:7)

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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

Norashidah Mohamed Nor, PhD
Associate Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Chairman)

Law Siong Hook, PhD
Associate Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

Rusmawati Binti Said, PhD
Associate Professor
Faculty of Economics and Management
Universiti Putra Malaysia
(Member)

ROBIAH BINTI YUNUS, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date :

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Signature: ______________________________

Name of Chairman of Supervisory Committee: Associate Professor Dr. Norashidah Mohamed Nor

Signature: ______________________________

Name of Member of Supervisory Committee: Associate Professor Dr. Law Siong Hook

Signature: ______________________________

Name of Member of Supervisory Committee: Associate Professor Dr. Rusmawati Binti Said

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TABLE OF CONTENTS

			Page
ABSTRACT			i
ABSTRAK			iii
ACKNOWLEDGEMENTS			v
APPROVAL			vi
DECLARATION			viii
LIST OF TABLES			xiii
LIST OF FIGURES			xiv
LIST OF APPENDICES			xv
LIST OF ABBREVIATIONS			xvii
CHAPTER			
1	**INTRODUCTION**		1
	1.1	Population Health, Poverty and World Development Goals	1
	1.2	The Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs)	2
	1.3	Population Health in Nigeria	7
	1.4	Poverty in Nigeria	11
	1.5	Population Health and Poverty Policies in Nigeria	12
	1.6	The Concept of Micro Determinants and their Relationship with Population Health and Poverty	14
	1.7	Nigeria's People and Population	15
	1.8	Problem Statement	15
	1.9	Research Questions	16
	1.10	Research Objectives	16
	1.11	Significance of the Study	17
	1.12	Organization of the Study	19
2	**LITERATURE REVIEW**		20
	2.1	Theoretical Literature	20
		2.1.1 Grossman Health Production Model	20
		2.1.2 Grossman Model Derivation	21
		2.1.3 Criticisms of Grossman Health Production Model	24
		2.1.4 Poverty Theories	25
	2.2	Empirical Literature Review	26
		2.2.1 Empirical Review on the Effect of Micro Determinants on Maternal Mortality and Under-5 Mortality	26
		2.2.2 Empirical Review on the Effect of Micro Determinants on Unmet Need for Family Planning	32
		2.2.3 Empirical Review on the Effect of Micro Determinants on Poverty	35
		2.2.4 Literature Gap	40

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3 **METHODOLOGY** 42
3.1 Introduction 42
3.2 Empirical Estimation Models 42
3.2.1 Empirical Model for Population Health Outcome and Micro Determinants 43
3.2.2 Empirical Model for Reproductive Health and Micro determinants 46
3.2.3 Empirical Model for Extreme Poverty and Micro determinants 48
3.3 Nature and Source of Data 50
3.4 Dependent Variables 52
3.4.1 Population Health Outcome 52
3.4.2 Reproductive Health 53
3.4.3 Extreme Poverty 55
3.5 Independent Variables 55
3.6 Estimation Techniques 61
3.7 Maximum Likelihood Estimation 61
3.7.1 Logistic Regression Model 64
3.7.2 Diagnostic Tests for the Logistic Regression Model 65
3.7.2.1 Specification Error Test 65
3.7.2.2 Multicollinearity Test 65
3.7.3 Robustness 66

4 **RESULTS PRESENTATION AND DISCUSSION** 67
4.1 Introduction 67
4.2 Micro Determinants and Maternal and Under - 5 Mortality 67
4.2.1 Maternal Mortality 67
4.2.2 Bivariate Logistic Regression of the Association between Micro Determinants and Maternal Mortality 70
4.2.3 Multivariate Logistic Regression of the Association between Micro Determinants and Maternal Mortality 71
4.2.4 Micro Determinants and Maternal Mortality in Urban and Rural Area 78
4.2.5 Under-5 Mortality 84
4.2.6 Bivariate Logistic Regression of the Association between Micro Determinants and Under-5 Mortality 87
4.2.7 Multivariate Logistic Regression of the Association between Micro Determinants and Under-5 Mortality 87
4.2.8 Micro Determinants and Under-5 Mortality in Urban and Rural Areas 94
4.3 Micro Determinants and Unmet Need for Family Planning 100
4.3.1 Bivariate Logistic Regression of the Association between Micro Determinants and Unmet Need for Family Planning 103
4.3.2 Multivariate Logistic Regression of the Association between Micro Determinants and Unmet Need for Family Planning 103

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4.3.3 Micro Determinants and Unmet Need for Family Planning in Urban and Rural Areas 112
4.4 Micro Determinants and Extreme Poverty 120
4.4.1 Bivariate Logistic Regression of the Association between Micro Determinants and Extreme Poverty 123
4.4.2 Multivariate Logistic Regression of the Association between Micro Determinants and Extreme Poverty 123
4.4.3 Micro Determinants and Extreme Poverty in Urban and Rural Areas 130
4.5 Summary 136

5 SUMMARY, CONCLUSION AND RECOMMENDATIONS 137
5.1 Introduction 137
5.1.1 Summary 137
5.1.2 Conclusions 139
5.1.3 Recommendations 140

REFERENCES 142
APPENDICES 173
BIODATA OF STUDENT 195

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LIST OF TABLES

Table		Page
1.1	The Millennium Development Goals	3
1.2	The Sustainable Development Goals	4
1.3	SDGs' Goal 1 1and 3 and their Targets	6
3.1	Expected Signs of the Micro Determinants in the Empirical Models	60
4.1	Summary Statistics of Maternal Mortality across Micro Determinants	68
4.2	Multivariate Logistic Regression of the Association between Micro Determinants and Maternal Mortality at National Level	72
4.3	Multivariate Logistic Regression of the Association between Micro Determinants and Maternal Mortality at Urban and Rural Levels	79
4.4	Summary Statistics of Under-5 Mortality across Micro Determinants	85
4.5	Multivariate Logistic Regression of the Association between Micro Determinants and Under-5 Mortality at National Level	89
4.6	Multivariate Logistic Regression of the Association between Micro Determinants and Under-5 Mortality at Urban and Rural Levels	95
4.7	Summary Statistics of Unmet Need for Family Planning across Micro Determinants	101
4.8	Multivariate Logistic Regression for the Association between Micro Determinants and Unmet Need for Family Planning at National Level	105
4.9	Multivariate Logistic Regression of the Association between Micro Determinants and Unmet Need for family Planning at Urban and Rural Levels	113
4.10	Summary Statistics of Percentage of Women Living in Extremely Poor Households across Micro Determinants	121
4.11	Multivariate Logistic Regression of the Association between Micro Determinants and Extreme Poverty at National Level	125
4.12	Multivariate Logistic Regression of the Association between Micro Determinants and Extreme Poverty at Urban and Rural Levels	132

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LIST OF FIGURES

Figure		Page
1.1	Nigeria's Estimated Maternal Mortality Ratio (MMR) between 1990 and 2015	8
1.2	Countries with very high Maternal Mortality Ratio (MMR) in the World in 2015	9
1.3	Nigeria's Estimated Under-5 Mortality Rate (U5MR) between 1990 and 2015	9
1.4	Estimated Rate of Unmet Need Family Planning (UNFP) in Nigeria from 1990 to 2016	11
1.5	Percentage of Nigeria Population that are Non-Poor, Moderately Poor, and Extremely Poor from 1980 to 2010	12
3.1	Nigeria Demographic and Health Survey Sample	51
3.2	Measure of Maternal Mortality in 2013 NDHS	53
3.3	Determination of Unmet Need for Family Planning in the DHS	54

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LIST OF APPENDICES

Appendix		Page
1A	Summary Statistics of Maternal Mortality across Micro Determinants in the Urban and Rural Areas	173
2A	Bivariate Logistic Regression of the Association between Micro Determinants and Maternal Mortality	175
3A	Multicollinearity in Micro Determinants for Maternal Mortality Model at National Level	177
4A	Multicollinearity in Micro Determinants for Maternal Mortality Model at Urban Level	177
5A	Multicollinearity in Micro Determinants for Maternal Mortality Model at Rural Level	178
6A	Summary Statistics of Under-5 Mortality across Micro Determinants in the Urban and Rural Areas	179
7A	Bivariate Logistic Regression of the Association between Micro Determinants and Under-5 Mortality	181
8A	Multicollinearity in Micro Determinants for Under-5 Mortality Model at National Level	183
9A	Multicollinearity in Micro Determinants for Under-5 Mortality Model at Urban Level	183
10A	Multicollinearity in Micro Determinants for Under-5 Mortality Model at Rural Level	184
11A	Cross Tab of Ethnicity and Education in the Under-5 Mortality	184
1B	Bivariate Logistic Regression of the Association between Micro Determinants and Unmet Need for Family Planning	185
2B	Multicollinearity in Micro Determinants for Unmet Need for Family Planning Model at National Level	187
3B	Multicollinearity in Micro Determinants for Unmet Need for Family Planning Models at Urban Level	187
4B	Multicollinearity in Micro Determinants for Unmet Need for Family Planning Model at Rural Level	188

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5B	Cross Tabulation between Ethnicity and Women Status Constructs in the UNFP	188
1C	Bivariate Logistic Regression of the Association between Micro Determinants and Extreme Poverty	189
2C	Multicollinearity in Micro Determinants for Extreme Poverty Models at National Level	191
3C	Multicollinearity in Micro Determinants for Extreme Poverty Models at Urban Level	191
4C	Multicollinearity in Micro Determinants for Extreme Poverty Models at Rural Level	192
5C	Cross Tabulation between Age of Household's Head, Gender of Household's Head, Ethnicity and Region, and Number of Household's Members	192
6C	Cross Tabulation between Ethnicity and Education	193
7C	Cross Tabulation between Age and Gender of Household's Head, Type of cooking Fuels and Extreme Poverty in Urban Areas	194
8C	Cross Tabulation between Gender of Household's Head and Women and Men Education	194

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LIST OF ABBREVIATIONS

DHS	Demographic and Health Survey
FMOH	Federal Ministry of Health
FP	Family Planning
FPB	Family Planning Blueprint
HPF	Household's Production Function
MD	Micro Determinants
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
NBS	National Bureau of Statistics
NEEDS	National Economic and Empowerment Strategy
NDHS	Nigeria Demographic and Health Survey
NAPEP	National Poverty Eradication Programme
NPC	National Population Commission
PAP	Poverty Alleviation Programme
SDGs	Sustainable Development Goals
SDH	Social Determinants of Health
UN	United Nations
UNFP	Unmet Need for Family Planning
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
U5MR	Under-5 Mortality Rate
WHO	World Health Organization

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CHAPTER 1

INTRODUCTION

1.1 Population Health, Poverty and World Development Goals

The World Health Organization in 1948 defined health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (Grad, 2002). Improvement in population health status is fundamental to individual economic empowerment and the overall economic growth. Though some empirical studies such as Ecob & Davey (1999) and Meer, Miller, & Rosen (2003) suggest that more wealth leads to more health because a wealthier person has access to good healthcare, live in a healthy environment and can afford balanced diet which makes life healthier; other studies show a reversal, that good health increase productivity through more healthy days and increase savings from less medical expenses (Bhargava, Jamison, Lau, & Murray, 2001; Bloom & Canning, 2000; Bloom, Canning, & Jamison, 2004; Bloom, Canning, & Sevilla, 2004; Lau, Wang, & Jamison, 2004; Semyonov, Lewin-epstein, & Maskileyson, 2013; Suhrcke et al., 2006). This mutually exclusive and the likely reverse causation between health and poverty is probably why the duo become major issues in today's global development discourse.

Achieving development in the world today, particularly in the Low and Middle Income Countries (LMIC), requires the synergy between population health and poverty (Graham, Fitzmaurice, Bell, & Cairns, 2004). On this, the United Nations in year 2000 launched the Millennium Development Goals (MDGs), and recently in 2015, launched the Sustainable Development Goals (SDGs). Central in these programmes are population health and poverty goals, which involves the reduction of Maternal Mortality Ratio (MMR), Under-5 Mortality Rate (U5MR), extreme poverty, and ensuring universal access to sexual and reproductive health. The question is therefore, what are the determinants of population health and poverty? In answering this question, several studies have concentrated on macro factors such as the Gross Domestic Products (GDP), curative health facilities and training of health personnel, which have been ineffective in low and middle income countries (Filmer, Hammer & Pritchett, 2000; Yu, Fan, & Magalhães, 2015). However, poverty and health are micro issues and as such require micro solution. This study thus explore the micro determinants of population health and poverty in Nigeria.

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1.2 The Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs)

In the year 2000, leaders of 189 countries of the world under the United Nations (UN) endorsed the ever ambitious world development agenda, popularly known as the Millennium Development Goals (MDGs) (United Nations, 2015a). The MDGs was a millennium development declaration, a commitment by nations to build a safer, prosperous and more equitable world by the year 2015. The Millennium Development Goals (MDGs) had eight (8) goals and twenty one (21) specific targets which were to be achieved between 2000 and 2015, using 1990 as a benchmark for assessing its progress and achievement (United Nations, 2015a, 2015b). Table 1.1 presents the MDGs and their respective targets. Health and poverty appeared to be fundamental in the MDGs. Goal 1 was directly related to poverty, which aimed to eradicate poverty and hunger by halving the population of those living on less than $1/day between 1990 and 2015. Goal 4, 5, and 6 were directly health related goals. Health issues in the MDGs range from combating diseases such as HIV/AIDS and malaria, achieving universal reproductive health such as family planning, reducing maternal mortality by 75% and reducing under-5 mortality by two-third between 1990 and 2015.

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Table 1.1 : The Millennium Development Goals

Number	Goals	Targets
1	**Eradicate poverty and Hunger**	Halve, between 1990 and 2015, the proportion of people living on less than $1.25 a day
		Achieve decent employment for women, men, and young people
		Halve the proportion of people who suffer from hunger between 1990 and 2015
2	**Achieve universal primary education**	All children, girls and boys, can complete a full course of primary schooling by 2015
3	**Promote gender equality and women empowerment**	Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015
4	**Reduce child mortality rates**	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate
5	**Improve maternal health**	Reduce Maternal Mortality Ratio by three quarters between 1990 and 2015
		Achieve universal access to reproductive health by 2015
6	**Combat HIV/AIDS, malaria, and other diseases**	Have halted by 2015 and begun to reverse the spread of HIV/AIDS
		Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it
		Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases
7	**Ensure environmental sustainability**	Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources
		Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss
		Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation
		By 2020, to have achieved a significant improvement in the lives of at least 100 million slum-dwellers
8	**Develop a global partnership for development**	Develop further an open, rule-based, predictable, non-discriminatory trading and financial system
		Address the Special Needs of the Least Developed Countries (LDCs)
		Address the special needs of landlocked developing countries and small island developing States
		Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term
		In co-operation with pharmaceutical companies, provide access to affordable, essential drugs in developing countries
		In co-operation with the private sector, make available the benefits of new technologies, especially information and communications

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Though the MDGs recorded outstanding performance in the aspect of poverty reduction and remarkable progress in some of the goals, particularly the health related goals, many however consider MDGs as unfinished business (Lomazzi, Borisch, & Laaser, 2014). Not only that many of the goals of the MDGs were not achieved, but progress recorded were unacceptably unequal. Even in the globally achieved targets, the developing regions, particularly sub-Saharan Africa, were tragically left behind. For instance, the MDGs' poverty target was to reduce the global poverty rate by half between 1990 and 2015. While this was globally achieved earlier in 2010, the sub-Saharan Africa could not, rather, the region became host to 50.7% of the world's extremely poor population in 2013 (World Bank, 2016).

To expand and build on the unfinished business of the MDGs, on the 25th of September, 2015, the United Nation General Assembly adopted a new post-2015 global development agenda, the Sustainable Development Goals (SDGs) (World Health Organization, 2015a). The SDGs has 17 comprehensive and more ambitious goals and 169 targets to be achieved by the year 2030 as shown in table 1.2.

Table 1.2 : The Sustainable Development Goals

Goal 1	End poverty in all its forms everywhere
Goal 2	End hunger, achieve food security and improved nutrition and promote sustainable agriculture
Goal 3	Ensure healthy lives and promote well-being for all at all ages
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
Goal 5	Achieve gender equality and empower all women and girls
Goal 6	Ensure availability and sustainable management of water and sanitation for all
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Goal 10	Reduce inequality within and among countries
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable
Goal 12	Ensure sustainable consumption and production patterns
Goal 13	Take urgent action to combat climate change and its impacts
Goal 14	Conserve and sustainably use the oceans, seas and marine resources for a sustainable development
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development

(Source: World Health Organization 2015a)

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In the 17 goals of the SDGs, similar to the MDGs, health and poverty occupy significant positions. Though only goal 1 and 3 are directly poverty and health goals respectively, all the other remaining goals are indirectly linked to health and poverty (World Health Organization, 2015a). Maternal and child health outcome and reproductive health as in the MDGs are similarly enshrined in the goal 3 of the SDGs, with a more ambitious and conservative targets – the SDGs aim to reduce maternal mortality ratio and under-5 mortality rate to at least 70/100,000 live births and 25/1,000 live births by 2030. Similarly, extreme poverty which was the main focus of the MDGs' goal 1, is also the main focus of SDGs' goal 1. The difference is, while goal 1 of the MDGs sought to halve the proportion of people living in extreme poverty, goal 1 of the SDGs seeks the eradication of extreme poverty – zero poverty. Table 1.3 shows the targets of goal 1 and 3.

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Table 1.3 : SDGs' Goal 1 1and 3 and their Targets

Goal	Targets
Goal 1: End poverty in all its forms everywhere	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day
	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable
	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including micro finance
	By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters
Goal 3: Ensure healthy lives and promote well-being for all at all ages	By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
	By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases
	By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being
	Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol
	By 2020, halve the number of global deaths and injuries from road traffic accidents
	By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes
	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all
	By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

(Source United Nations 2015c)

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Generally, the MDGs and the SDGs were to achieve virtually the same developmental goals, however with the SDGs being more comprehensive and conservative in its targets. Most importantly, both MDGs and SDGs all see population health and poverty as pivotal for achieving the desired development. Achieving development in this context become a serious challenge to most of these developing countries such as Nigeria due to the heavy burden of poor population health and poverty (World Bank, 2016; World Health Organization, 2015b).

1.3 Population Health in Nigeria

Women and children are vulnerable population in terms of the health of a population (Center for Leadership Education in Maternal & Child Public Health [University of Minnesota], 2015; Jin, 2018; Waisel, 2013). Hence, maternal and child health outcomes such as maternal mortality and under-5 mortality, and reproductive health are used as measures for population health (Gabbe et al., 2017; Pritchett & Summers, 1996; Wegman, 2001; World Health Organization, 2015c).

In the context of these measures, the developing regions are hosts to more than 90% of the global health burden (World Health Organization, 2015c). The global statistics for maternal mortality in 2015 shows that maternal mortality is majorly a developing countries problem, 99% (302,000) of the world total maternal mortality (303,000) in 2015 occurred in developing regions. Among the developing regions, sub-Saharan Africa has the highest maternal deaths (World Health Organization, 2015b). Similarly, of the 5,945,000 under-5 deaths in the world in 2015, 5,865,000 occurred in the developing regions, and sub-Saharan Africa and Southeast Asia accounted for 2,94,000 and 2,581,000 deaths respectively (UNICEF, 2015). These deaths could be reduced through adequate reproductive healthcare such as the use of contraception, particularly in the LMIC where fertility rate is high (Ackerson & Zielinski, 2017; Adanikin, McGrath, & Padmadas, 2017; Saifuddin Ahmed, Li, Liu, & Tsui, 2012; Emina, Chirwa, & Kandala, 2014). However, the number of women of reproductive age who have need for family planning and those with Unmet Need for Family Planning (UNFP) is on the increase globally, with more in the sub-Saharan African countries (Darroch & Singh, 2013). In 2010, the number of women with UNFP in the world was 146 million (Alkema, Kantorova, Menozzi, & Biddlecom, 2013); this number was estimated to have now increased to 222 million (Ackerson & Zielinski, 2017; Darroch & Singh, 2013; Patel et al., 2016). The situation in more worse in sub-Saharan Africa where 60% (53 million) of the 89 million women of reproductive age have UNFP (Darroch & Singh, 2013). Reducing the number of women with UNFP will not only improve women reproductive health but also reduce maternal and child mortality (Adanikin et al., 2017; Austin, 2015; Mandara, 2012).

Nigeria as one the developing and sub-Saharan African countries is one the countries with the highest number of maternal and under-5 mortality and women with UNFP in the world (Adanikin et al., 2017; Adinma et al., 2011; A. Austin, 2015; Ayoade, 2018; Babalola, Kusemiju, Calhoun, Corroon, & Ajao, 2015; Okonofua, Lambo, Okeibunor,

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& Agholor, 2011; Shetty, 2016). Global estimates for maternal and under-5 mortality in 2015 shows that Nigeria accounted for 58,000 of maternal deaths, which is 19% of the total maternal deaths in the world. This made Nigeria the country with the highest maternal mortality in the world. Out of the 5.945 million estimated global under-5 mortality in 2015, 12.6% (750,000) occurred in Nigeria (UNICEF, 2015). This is more than the under-5 deaths in Eastern and Southeastern Asia put together, and South Asia excluding India in 2015. Hence, Nigeria was the second largest contributor to under-5 deaths in the world after India in 2015 (Ayoade, 2018; World Health Organization, 2015b). Different empirical studies across Nigeria, both hospital and community based, corroborated these estimates of high maternal and under-5 mortality (Adamu, Salihu, Sathiakumar, & Alexander, 2003; Adetola, Tongo, Orimadegun, & Osinusi, 2011; Igwegbe, Eleje, Ugboaja, & Ofiaeli, 2012; Onwuhafua, Onwuhafua, & Adze, 2000; Ozumba & Nwogu-Ikojo, 2008; Umeora, Esike, & Egwuatu, 2005).

In 2015, Nigeria was the third country with highest Maternal Mortality Ratio (MMR)[1] and the eighth country with highest Under-5 Mortality Rate (U5MR)[2] in the world. In figure 1.1, between 1990 and 2015, though Nigeria recorded some progress in reducing its MMR, however, it was high among countries as shown in figure 1.2, and far from achieving the MDGs' maternal health goal of 75% reduction in MMR between 1990 and 2015. All the 18 countries with very high MMR in the World were from sub-Saharan Africa. In 1990, Nigeria's MMR was 1350 per 100,000 live births, and was reduced to 814 per 100,000 live births at the end of the MDGs – 39.7% reduction. Currently, the annual rate of reduction in Nigeria's MMR is 2.0% while the reduction rate required to achieve the SDGs goal is 7.5% (World Health Organization, 2015b).

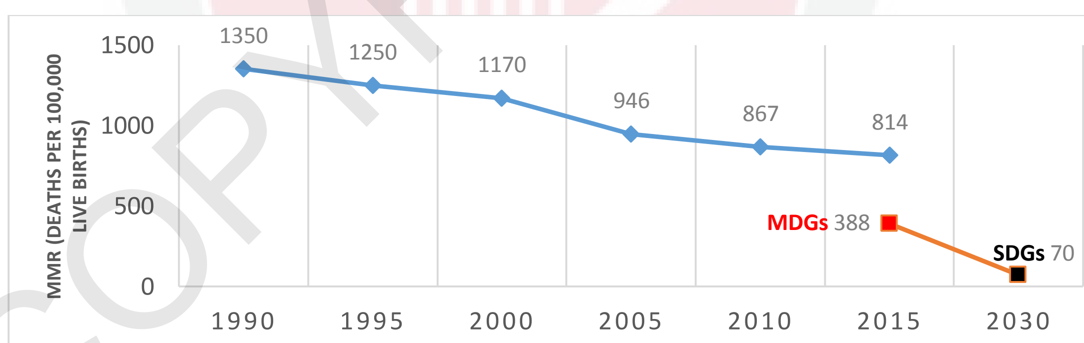

Figure 1.1 : Nigeria's Estimated Maternal Mortality Ratio (MMR) between 1990 and 2015
(Source of Data: World Health Organization 2010, 2012a, 2014d, 2015b)

[1] Number of maternal deaths per 100,000 live births
[2] Number of under-5 deaths per 1,000 live births

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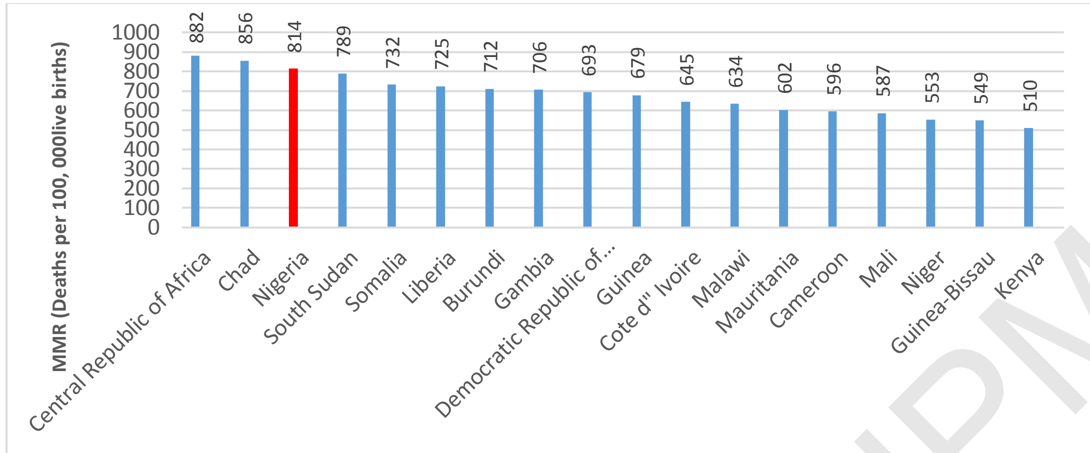

Figure 1.2 : Countries with very high Maternal Mortality Ratio (MMR) in the World in 2015
(Source of Data: World Health Organization 2015b)

Similarly in the U5MR, Nigeria remains one of the countries with highest U5MR in the World, the sixth country after Somalia, Chad, Central Africa Republic, Sierra Leon and Mali (UNICEF, 2017). As shown in figure 1.3, between 1990 and 2015, which was the era of MDGs, Nigeria's U5MR declined from 213 per 1,000 live births to 109 per 1,000 live births – 48.8% decrease, that was 18.2% less than the MDGs target. However, the country's U5MR is still high among countries, hence, achieving the SDGs' U5MR target is unlikely to be possible by 2030 in Nigeria, given the present annual rate of reduction in the U5MR. Nigeria currently reduces its U5MR by 2.7% annually, with U5MR of 109 in 2015, the SDGs' target is unachievable by 2030. Unless more effort is put in to drastically increase this rate, achieving this target for Nigeria is projected to be after 2050 (UNICEF, 2015).

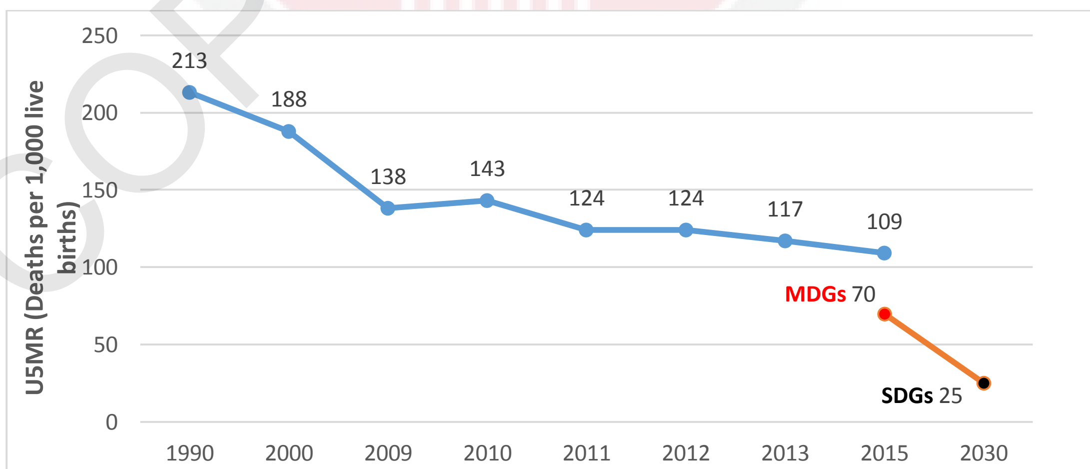

Figure 1.3 : Nigeria's Estimated Under-5 Mortality Rate (U5MR) between 1990 and 2015
(Source of Data: UNICEF 2010, 2011, 2012, 2013, 2014, 2015)

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Nigeria has also been identified as one the countries in the developing regions with poor reproductive health, and this has aggravated the maternal and child deaths in the country (Austin, 2015; Babalola & Oyenubi, 2018; Findley, Afenyadu, Uzondu, Ashir, & Doctor, 2013; Mandara, 2012). Keys to improving and understanding reproductive health worldwide are the Unmet Need for Planning (UNFP) and the use of contraceptive (Alkema, Kantorova, Menozzi, & Biddlecom, 2013; United Nations, 2015d). UNFP refers to fecund women, married or in union, who express intention to either limit or space child bearing, but not using any method of contraception (Casterline, Perez, & Biddlecom, 1997; Mills, Bos, & Suzuki, 2010). The rate of contraceptive use reflects the level of access to reproductive health (Alkema et al., 2013; Choi, Fabic, Hounton, & Koroma, 2015), however, the rate of contraceptive use among women of reproductive age across Nigeria has been very low, ranges from 5% to 15% (Adinma et al., 2011; Babalola et al., 2015). The population of women of reproductive age in Nigeria is increasing drastically but the use of contraception has not increase proportionally. This has made the number of women with UNFP to be on the increase. Increase in UNFP indicate high fertility which invariably have detrimental effect on maternal and child health (Adanikin et al., 2017; Austin, 2015).

The trend of UNFP in Nigeria has not been favourable. Since 1990, the rate of UNFP has virtually remain around the same level (Federal Ministry of Health, 2014). With a population of 183,000,000 in 2015, of which 49.5% are female and about 45 million are fecund (National Bureau Statistics, 2016), a non-decreasing UNFP is a serious issue. As indicated in figure 1.4, between 1990 and 2015 which was the era of MDGs, the minimum UNFP recorded was 17.5% in 2003. Goal 5 of the MDGs was to reduce UNFP by 50% in 2015. In 1990, Nigeria's UNFP was 21.5%, instead of reducing to about 10% in 2015, it rather swung above 17.5% and rose unprecedentedly to 28.9 in 2016. This should be very disturbing, because UNFP of 25% is considered extremely high (United Nations, 2015e). In 2015, Nigeria was the fourth country with the highest number of women with UNFP in the world, after China, India, and Pakistan and is projected to rank third by 2030 (United Nations, 2015b; United Nation, 2015d). With the increasing tendency of number of fecund women with UNFP and the projected population outburst in Nigeria by 2030 (United Nations, 2017d), the number of fecund women with UNFP in Nigeria is estimated to increase by 30% in 2030 United Nations (2015e). Hence, achieving the current SDGs target of UNFP in Nigeria becomes dimmed.

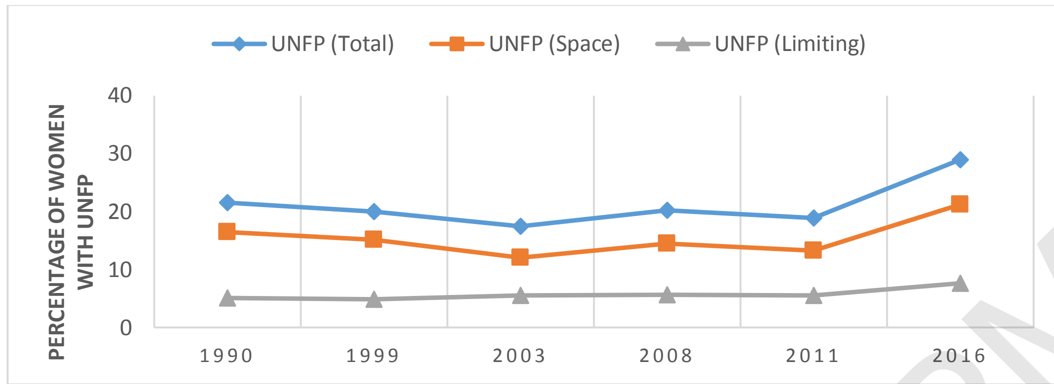

Figure 1.4 : Estimated Rate of Unmet Need Family Planning (UNFP) in Nigeria from 1990 to 2016
(Source of Data: United Nations 2017b)

1.4 Poverty in Nigeria

Though there is cultural and social dimension to poverty, it is generally viewed as an economic phenomenon (Agboola & Balcilar, 2012). "Poverty is not a matter of low-being, but the inability to pursue well-being precisely because of lack of economic means" (Sen, 1995). This definition viewed poverty as an economic deprivation which do not only affects individual's quality of life, but undermines the overall societal development. Due to its economic face, poverty has been measured and categorized using monetary terms. People who live below $1.25/day and $2/day are considered as extremely poor and poor respectively (Yu, Fan, & Magalhães, 2015), the World Bank has reviewed the measure for the extreme poverty to $1.90/day to preserve the real value of the $1.25/day international poverty line based on 2005 purchasing power parity (PPP) (World Bank, 2016). Poverty is an antithesis of development, no country can achieve development with reasonable number of its population living in poverty. Hence, poverty reduction become pivotal to any development agenda at country and global level.

Globally, about 2 billion people were estimated to be generally poor in 2015 (Lowder, Bertini, & Croppenstedt, 2017). For the extremely poor population, the 2013 World Bank estimates put the global number at 766.6 million, of which sub-Saharan Africa alone accounted for 388.8 million (50.7%) (World Bank, 2016). The larger percentage of this number live in the rural areas, where 52.0% of the population are extremely poor as compared to 28.8% in the urban area (Lowder et al., 2017). Among countries, Nigeria has the highest number of extremely poor people in 2018, not in sub-Saharan Africa, but in the world (Kharas, Hamel, & Hofer, 2018). Prior to this, Nigeria has been ranked one the poorest country in the world using different poverty measurements. Using the Human Development Index (HDI) computed by World Bank in 2011 and the Gross Domestic Products (GDP) measurement in 2013, Nigeria was ranked 156th country among 177 countries in terms of HDI and 44th poorest country in the world, respectively (Ajayi, 2015).

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The level of poverty and percentage of poor people in Nigeria has been on the increase since 1980 to date. Statistics from the National Bureau of Statistics revealed that between 2004 and 2010, the number of people in poverty rose from 68.7 million to 112.47 million (Ajayi, 2015). Figure 1.5 shows the poverty trend in Nigeria from 1980 to 2010. The percentages of the non-poor and moderately poor were steadily and slowly decreasing respectively, while the percentage of the extremely poor was increasing steadily. More glooming for Nigeria's poverty trend is the projection that the number people living in extreme poverty in Nigeria is likely to increase from 87 million in 2018 to 120 million in 2030 (World Poverty Clock & Brooking Institution, 2018). With the current poverty level in the country and the worsening projection in the future, development becomes a serious challenge in the country, particularly with the current target of zero poverty in the SDGs by 2030.

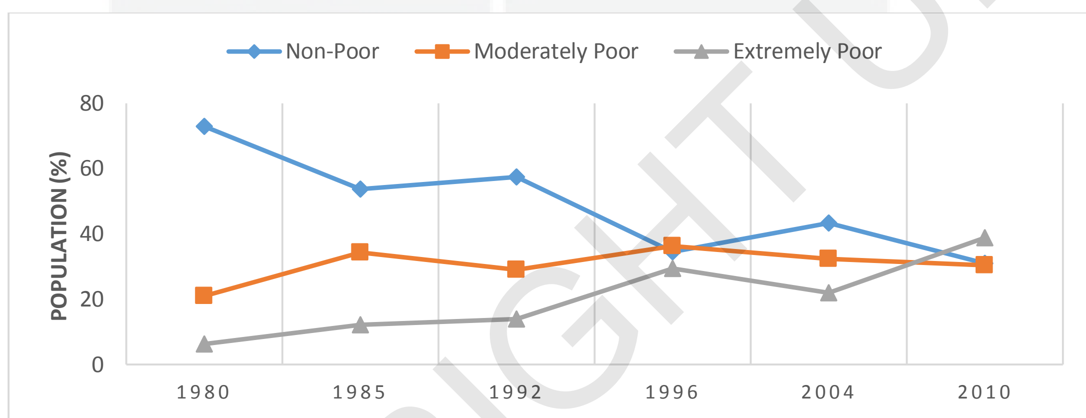

Figure 1.5 : Percentage of Nigeria Population that are Non-Poor, Moderately Poor, and Extremely Poor from 1980 to 2010
(Source of Data: National Bureau Statistics 2012)

1.5 Population Health and Poverty Policies in Nigeria

Achieving development particularly in the LMIC, requires synergy between population health and poverty (Graham et al., 2004). A sound population health and reduction in poverty are therefore necessary in the LMIC. One of the dominant approach to population health improvement and poverty reduction in these countries is the concentration of efforts on macro activities, such as increase in public expenditure on health and social assistance mostly in the form of cash transfer (Filmer, Hammer, & Pritchett, 2000; Lowder et al., 2017); however, this has proved ineffective as poor health and poverty has continue to be endemic in these countries (Filmer et al., 2000; Yu et al., 2015). Due to the ineffectiveness of this approach, there is need for multi-dimensional and complimentary approaches, which now led to attention being shifted to family and community based approach (Adekanmbi, Adedokun, Taylor-Phillips, Uthman, & Clarke, 2017; Filmer et al., 2000; World Health Organization, 2013).

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Nigeria had different health policies and programmes which generally focused on curative health. In response to the worsening population health in the country, policies such as the National Reproductive Health Strategic Framework and Plan (2001 – 2006), National Child Health Policy (2006), National Health Sector Reform Programme (2004-2007), the National Strategic Health Development Plan (2010-2015) were initiated (Federal Ministry of Health [Nigeria], 2002, 2005, 2006, 2010). By and large, the expenditure of this programmes majorly went to curative health in the form of training health personnel and building tertiary medical facilities. For instance, out of the more than US$26 billion budgeted for the National Strategic Health Development Plan (2010-2015), more than 90% went to curative care facilities. Though these policies were to improve healthcare, utilization of the health facilities have continue to be low (Adekanmbi et al., 2017). This indicates that in as much as such policies are needed in improving population health, it does not bring the required impacts particularly in the LMIC where social, community and cultural factors play important roles in individuals' lives. Achieving population health therefore requires not only a sound health system, but equally addressing the social system (Bishai et al., 2016; Jithesh & Ravindran, 2016; Rasanathan, Montesinos, Matheson, Etienne, & Evans, 2011; World Health Organization, 2011a). This study therefore explored the impacts of the social system on population health.

In the area of poverty reduction strategies, different antipoverty programmes have been initiated in Nigeria (Obadan, 2001; Omotola, 2008). Notable and recent among them was the Poverty Alleviation Programme (PAP), which was launched in 2000, and later renamed and relaunched in 2001 as National Poverty Eradication Programme (NAPEP) (Omotola, 2008; Ugoh & Ukpere, 2009). As usual to the common poverty reduction strategies in the LMIC, these programmes were also in the form of social protection, in which social assistance including cash transfers were given to the perceived vulnerable groups (Abdussalam, Johari, & Alias, 2015). Following the same line, the current government has embarked on similar strategy in the form of Social Investment Programme (SIP) since its inception in 2015. The SIP constitutes different programmes aim at supporting the poor, which include conditional monthly cash assistance to vulnerable households (Onuba, 2018). However, with all these interventions, the number of people living in extreme poverty in the country has continued to grow and the future is projected to be gloomy, given the projected future population growth (Onuba, 2018; World Poverty Clock & Brooking Institution, 2018).

Therefore, it is glaring that there is more to poverty reduction strategy in the country, which has to do with individual and community based factors. The new approach sees social capital and social exclusion as the basis for poverty (Johnson & Mason, 2012). Social capital are opportunities in the social and economic spaces of individual's surroundings, such as group association and network, as well as resources, that inform their actions towards gaining access to private and public resources for their advancement; while social exclusion refers to individuals not getting access to facilities and services that improve their well-being, such education, healthcare, and other infrastructural facilities. Empirically, Zhang, Zhou, & Lei (2017) study the effects of household's social capital and other household's properties on poverty

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reduction and found negative relationship. This study therefore examine the effect these individual and household factors on extreme poverty in Nigeria.

1.6 The Concept of Micro Determinants and their Relationship with Population Health and Poverty

Micro determinants are individual, social, environmental and households circumstances within which one is born, live, grow, work and age (Roberts, 2003; Tran, 2007). These determinants cut across demographic factors, socioeconomic factors and geographical or environmental factors. It is argued that since these factors surround, shape and affect individuals behaviours and actions, they are also likely to affect one's health seeking behaviour and access to health facilities (Braveman, Egerter, & Williams, 2011; Rasanathan et al., 2011; World Health Organization, 2011a, 2011b, 2013). Similarly, the micro-determinants were hypothesized to influence individuals' poverty level (Johnson & Mason, 2012), this owes to the argument that poverty is a product of an individual behaviours, actions and inactions (Blank, 2003; Bradshaw, 2007). In this context, poverty is said to results from individuals' deficiencies such as inactivity, irrational choice, as well as inherent incompetence. Individuals choose certain life style and act inappropriately in a way that makes them susceptible to poverty.

The relationship between health and poverty has been a debate in literature for decades in the perspective of wealth-health nexus. Two major views contend in literature. The first, which is the traditional view, supports causation from wealth to health under the pretext that wealthier people have the means to afford goods and services that improve health. The emerging and alternative view sees good health to promote higher economic resources and growth through higher productivity, education, investment in human capital, and demographic dividends (Bloom & Canning, 2000; Bloom, Canning, & Jamison, 2004; Bloom, Canning, & Sevilla, 2004; Semyonov et al., 2013). Pritchett & Summers (1996) categorizes the relationships between wealth and health into three: (1) wealth causes health, (2) health causes wealth, and (3) there are factors that causes both good health and more wealth. The micro determinants by their nature affect both health and wealth. Hence, this study explore the effect of the micro determinants on population health and poverty in Nigeria.

This study has become necessary given the population health and poverty situation in Nigeria and the inability of the various policies to curb the situation. Conventional paradigm suggests that better health and well-being results from economic growth (Brady, Kaya, & Beckfield, 2007). However, the Nigeria's case contradicts this paradigm. While Nigeria recorded outstanding economic performance by becoming the largest and the 21st economy in terms of GDP in Africa and the world respectively, the health and the well-being in the country is incommensurable (Burroway & Hargrove, 2018). Owing to this contradiction, which is common in most LMIC, a paradigm shift is suggested, which proposes shifting attention to the micro-

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determinants at the individual, households and community levels (Adekanmbi et al., 2017; Filmer et al., 2000; Johnson & Mason, 2012; World Health Organization, 2013).

1.7 Nigeria's People and Population

Nigeria is a country in the sub-Saharan African region with an estimated population of 190,886000 in 2017 (United Nations, 2017d). The most populous country in Africa (15% of Africa's population) and 7th in the world. The population is almost equally divided across gender – male (50.6) and female (49.4%). According to World Bank statistics, 49% of Nigeria's population reside in the urban. In 2016, Nigeria's Gross Domestic Products (GDP) and Income Per Capita (Current US$) were US$405.083 and US$2,450 respectively. Nigeria is a federation of 36 states with Abuja as the Federal Capital Territory (FCT). Nigeria is a home of about more than 250 ethnic groups, with Hausa, Yoruba and Ibo as majority (Central Intelligence Agency, 2018).

1.8 Problem Statement

Achieving development requires the synergy between population health and poverty (Graham et al., 2004). Nigeria as of the developing countries requires good population health and less poverty to progress on the part of development; however, indicators of population health and poverty in the country are among the worst in the World (Babalola et al., 2015; Babalola & Oyenubi, 2018; Findley et al., 2013; Global Health Workforce Alliance, 2012; Kharas et al., 2018; National Bureau of Statistics [Nigeria], 2012; UNICEF, 2017; USAID, 2018; World Health Organization, 2015b; World Poverty Clock & Brooking Institution, 2018). Nigeria had the highest number of maternal deaths with 50,000 deaths in 2015 and was ranked the third country with high MMR in the world (World Health Organization, 2015b). The U5MR and under-5 deaths in the country was the sixth and second highest in the world, respectively, in 2015 (UNICEF, 2017). The reproductive health in the form of contraceptive use is very low in the Nigeria at the range of 5.0% - 15.0%, with very high UNFP to the level of 28% in 2016 (Adinma et al., 2011; Family Planning 2020 [FP2020], 2016; Mandara, 2012). On poverty, extreme poverty has become endemic in the country that Nigeria had 87 million (45% of its population) extremely poor people in 2017, the highest number per country in the world, and this number is projected to increase to 120 million by 2030 (Kharas et al., 2018; World Poverty Clock & Brooking Institution, 2018).

With these pictures of population health and poverty in Nigeria, development becomes difficult. Hence, the health and poverty goals in the MDGs were not achieved by the country, and is further projected not to achieve the current SDGs (UNICEF, 2015; United Nations, 2017a; World Health Organization, 2015b). Different health and poverty policies were initiated to curb the problems of health and poverty, but the problems however seem unabated as health facilities utilization continue to remain low and the number of extremely poor people keeps increasing in the country. The ineffectiveness of these policies could be attributed to its focused on macro solutions

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such as building of more curative health facilities and training of health personnel in the area of health, and social protection such as cash transfer to vulnerable households in the area of poverty; while neglecting the micro factors within the individuals surrounding that shape their behaviours and actions (Filmer et al., 2000; Yu et al., 2015). Hence, a paradigm shift approach, which focuses on the micro determinants at individuals, households and community level is suggested (Johnson & Mason, 2012; World Health Organization, 2013). However, the nature and the impact of the micro factors on population health and poverty in the Nigeria context remain a question of empirical study. This study therefore explore the impact of the micro factors on the Nigeria's population health and poverty.

1.9 Research Questions

The research questions of the study are:

i. Does micro factors at individual, households and community levels influence population health outcome in Nigeria, and what are the nature of the factors?
ii. What are the micro factors that affect reproductive health in Nigeria?
iii. Does the poverty level in Nigeria being influenced by the micro factors within the individuals and their surroundings

1.10 Research Objectives

The general objective of the study is to explore the impact of the micro determinants on households' population health outcome, reproductive health, and poverty in Nigeria. The specific objectives are:

i. To determine the impact of micro determinants on population health outcome in Nigeria
ii. To examine the effect of micro determinants on reproductive health in Nigeria
iii. To analyze the impact of micro determinants on poverty in Nigeria

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1.11 Significance of the Study

This study will be of great importance to the achievement of Nigeria's globally aligned and local programmes and policies on health and poverty. Nigeria is signatory to globally health and development initiated programmes such as the SDGs, Family Planning 2020, and the Rio Political Declaration for action on SDH. The country also has local Economic Transformation Blueprint, tagged Vision 20:2020, which is to operate between 2009 and 2020, and place the country among the first 20 economies in the World by the year 2020. This study will help in the achievement of these programmes.

In the Vision 20:2020, Nigeria targets the reduction of Maternal Mortality Ratio to 75 per 100,000 live births by 2015 and 50 per 100,000 live births by 2020. Similarly, the policy seeks to reduce Under-5 Mortality Rate to 75 per 1,000 live births by 2015 and 50 per 1,000 live births by 2020 (National Population Commision, 2009). Though the 2015 targets of the vision were not achieved and there is little time left for the 2020 targets, it is however, a road map to 2030 SDGs' targets. Apart from the usual macro activities such as building health facilities and spending on training of health workers, this study will provide an insight into the micro factors at households and individual levels that are influential in reducing the maternal and under-5 mortality in the country.

In 2012, the London Summit on Family Planning, which Nigeria was part, seeks to increase the number of women using contraceptives by additional 120 million by 2020 in 69 poorest countries in the World, through addressing the financing, policy, delivery, as well as the socio-cultural barriers that hinder the use of contraceptives (Family Planning 2020, 2016). In line with the summit commitment, Nigeria rolled out a four years term Family Planning Blueprint (FPB) in 2014. It aimed to achieve increase in contraceptives use from 15% in 2014 to 36% in 2018. Half way of the programme in 2016, use of contraception stood at 20.4% (United Nations, 2017b), about 16% required for the remaining two years of the programme. Though this might not be achieved, is a way towards the 2030 SDGs target. Increase in contraceptive use reduces the UNFP, hence, examining the socio-cultural and religious factors that influences unmet need for family planning will facilitate the achievement of the FPB and SDGs targets.

Eradication of extreme hunger and poverty is also central to the Nigeria's Vision 20:2020. This is in line with SDGs target of eradicating extreme poverty for all people by 2030. Vision 20:2020 seeks to reduce the number of people suffering from extreme hunger and poverty by 50% in 2015 and by 75% in 2020. This study will be of immense importance to these objectives by analyzing the associating factors of poverty at households and individual levels. Influencing those factor will facilitates the achievement of Vision 20:2020 and SDGs poverty targets.

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Furthermore, Nigeria is a signatory to Rio Political Declaration for Action on SDH, where countries made commitments to address SDH for improvement in population health (World Health Organization, 2011a). SDH are not the same across countries, each country has peculiarity in its social and cultural setting. Hence, this study will bring to limelight, the Social Determinants that are relevant to population health improvement and poverty reduction in Nigeria for appropriate actions.

This study will contribute to literature by including some micro determinants which hitherto have not been tested by other studies on the effect of micro determinants on population health and poverty. Most studies pay attention to women's education and neglecting men's education in respect to maternal and under-5 mortality despite its relevance particularly in a patriarchal setting. Access to electricity and use of solid fuels are concentrated on under-5 mortality, hence, this study extends this effect to maternal mortality. Effect of women's status indicators were not tested on maternal and under-5 mortality directly in previous studies, they only reveal its correlation with healthcare utilization. This study will examine these gaps.

On the UNFP, the effect of number of children ever born and parity (fertility) is given much attention. This study will examine the effect of the desire to have more children and the ideal number of children prefer on UNFP. Women decision making ability in the household – decision on own health, decision on large household purchase, and the decision to visit family and relatives – are measured separately in the literature. In addition to examining their effects separately, this study will pool all the measures and examine its effect on UNFP.

Studies on the effect of micro determinants on household's income, in terms of education, mostly concentrate on household head's educational level. Household head in a patriarchal society is male, however, women education could also be an important determinant of household's income, particularly if she has decision making ability. This study will examine the effect of women education. Woman's household decision making ability could afford her to engage in economic activities, labour force participation, and have control over her earnings, but its effect on household's wealth is given less attention. This study examines the effect of women's status on household's wealth or poverty. Similarly, despite the potential link between diseases cause by use of solid fuels and unimproved water and sanitations, and decrease in household's income, empirically studies on the effect of any of these cause on household's income or poverty are nevertheless low. This study will therefore analyze the direct effect of these cause on household's income.

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1.12 Organization of the Study

The study is categorized into five basic chapters. Chapter discusses the health and poverty issues at global and Nigeria level vis-à-vis the Millennium Development Goals (MDGs) and the ongoing Sustainable Development Goals (SDGs). It highlights the challenges of Nigeria in achieving the SDGs and the need for measures. Empirical and theoretical literature in relation to health and poverty are reviewed in chapter two. It analyzes the micro determinants that affect health and poverty, identified in previous studies, as well the theoretical relation between micro determinants, and health and poverty.

Chapter three presents the methodological process through the study's objectives are to be achieved. It discusses the data, the variables, and the statistical tool to be used. The overall results are presented and discussed in chapter four, according to the objectives. Finally, chapter five summarizes the main findings of the study, and proffer recommendation based on the findings.

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