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## Educational Attainment and Health Outcomes in Nigeria: A Survey from NDHS (2008 & 2013)

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### **Abstract:**

*This study simply seeks to analyse the degree to which health status of individuals affect the level of education attained and to adjudicate the influence of socio-demographic and health status on the level of education attained using Nigeria as a case study. The theory adopted in this study is the Grossman model of demand for health. Socio-demographic variables include age, wealth index and type of place of residence; while health-related variables include wellness index, source of drinking water, share toilet with other households, predominance of mosquito net, treatment of water and current marital status. Micro data from the Nigerian Demographic and Health Survey (NDHS) for years 2008 and 2013 are used as a tool to carry out this analysis via SPSS software. Univariate and bivariate analysis are carried out which includes frequency distribution and cross tabulation respectively. Multiple regression is used to analyse the effect of health status and several socio-demographic factors on educational attainment. Health status with socio-demographic factors are found to significantly impact educational attainment in Nigeria in years 2008 and 2013.*

**Keywords:** Educational attainment, health status, demographic factors, Micro data, NDHS, Nigeria

### **1. Introduction**

No specific definition of education is generally accepted due to globally different perspectives. Education is a deliberate endeavor to enable people to defend their lifestyle and culture, increase long term ability to survive and sustain development from generation to generation (National education system law no. 2, 1989. The National Education Law no. 20 of 2003 defines education as an intentional attempt to establish an atmosphere to learn as well as its procedure such that learners thoroughly improve the irreligious, spiritual, self-discipline, personage, intelligence and skills potentials in society. Therefore, education helps us reconcile our great intentions with reality by thinking clearly and accurately in achieving our goals such that mistakes that would cost not only us but the world at large are avoided. The teaching methods in schools these days encourage cramming and a wrong teacher-student relationship exists where the students are scared of the teacher and the teachers want back exactly what was taught in examinations (Schools of Conscience, 2014).

According to Parankimalil (2012), education is a life-long process and is needed in every aspect of life as it is a process that involves learning from infancy to maturity. Education is a dynamic and systematic process which involves systematic institutions and regulations. It is the development of individual and the society for balanced economic growth. It is also the modification of behaviour and past experiences. Education has a purpose and direction and involves training of desirable activities and skill that are socially constructive. Education is a bipolar process, that is, education is a conscious and deliberate process which involves personal acting on another to modify the development of the other person. Finally, education is a three-dimensional process consisting of the teacher, the child and the society.

On the other hand, the definition of health in 1948 by World Health Organization (WHO) was as a state of absolute physical, mental and social wellness rather than just mere lack of ailment or sickness. However, an article in the Lancet critiques WHO's definition of health that it is not relevant in this era of knowledge and advanced science and technology (The Lancet, 2009). Nordqvist (2015) classified health into two: physical and mental health. In his article, physical health refers to a healthy body requiring adequate exercise, rest and nutrition. Physical health is further divided into two by some people: structural and chemical health. Structural health refers to the bones, organs, muscles, height, weight, and so on while chemical health refers to the tissues and chemicals in the body. Mental health, on the other hand refers to emotional and cognitive wellbeing which generally refers to the absence of mental illness. However, health is also applied in non-medical contexts, e.g. a healthy economy simply means a sustained and growing economy (Nordqvist, 2015).

The Mickinley Health Center (2013) defined wellness as a condition of optimum welfare directed to maximize a person's capabilities, which is lifetime means of improving physical, intellectual, emotional, social, spiritual, and environmental welfare. Meanwhile, Sartorius (2006) identified two other definitions of health. First, health is a mode allowing persons to sufficiently meet up all necessities of everyday life. However, it is difficult to reconcile both definitions because there are people whose body tissue are healthy but feel ill; there are also people with symptoms of abnormalities

but they do not feel ill and there are those who hear voices or see things and undergo psychiatric care but are not in need of medical care. Second, health is a state of balance and equilibrium established within an individual and between that individual and his social and physical environment. This simply means that it is a person's mindset that determines whether or not he is healthy and not the presence of disease. According to WHO (n.d.), the major influences of health are the economic and social environment, the physical environment as well as the characteristic and behaviour of individuals amongst others including socio-economic status, education, job and employment conditions, culture, generic inheritance, gender, accessibility and usage of health services.

Education has two sides: the supply/quantity side which refers to the level of education attained and the value/quality side which refers to the substance and capacity to effectively apply knowledge (Hanushek, 2005). High quality education involves higher investment which leads to high returns to schooling. However, due to difficulty in measuring the quality of education, quantity of education attained is often used as a proxy (Gibson et al., 2006). Therefore, in this study, educational attainment is used to capture education due to limitation of data for indicators that would have been used to measure the quality of education. Enrolment rate is a long-term indicator of education attained while grade point average (GPA) and grades are short term indicators (Suhrccke, 2011).

Health status simply refers to not just the absence of diseases but functionality, physical and mental wellbeing. Access to healthcare services, poverty and income level, religious and cultural beliefs and educational level are a few factors that determine health status. A positive health status contributes to an effective labour force, family planning, longer life expectancy, happiness and wellbeing (Nordqvist, 2015).

The relationship between educational attainment and health status could refer to how the knowledge, education and skills gained contribute to one's health status. However, in this study, this relationship refers to how the health status of an individual influences one's educational attainment. This also considers the quality obtained which could be in terms of grades, productivity, among others (Feinstein, Sabates, Tashweka, Sorhaindo & Hammond, 2006).

Educational attainment is not at its highest level in Nigeria. This is firstly because secondary level of education is the highest level of education attained by most Nigerians probably due to the fact that Universal basic education (UBE) covers only primary and junior secondary schools in the nation (Jennifer, 2011). Primary school completion rate dropped from 79.5 percent in 2004 to 69.4 percent in 2008 but increased to 76 percent in 2010 (World Bank, 2015). Secondary enrolment has been increasing from 24.6 percent in 1990 to 26.9 percent in 2001 to 43.8 percent in 2010 (World Bank, 2015). Also, only 29 percent of students who enrol in secondary school end up as graduates by the age of 17 but when the age limit increases to 24 years to capture late starters and repeaters, secondary graduation rate increases to 75 percent (A world at school, (n.d)). According to UIS (2010), twenty million six hundred and eighty-two thousand enrolled in primary school as at 2010; nine million and fifty-seven thousand enrolled in secondary school as at 2010; one million and seven hundred thousand enrolled in tertiary schools as at 2012. Hence, secondary gross enrolment rate as at 2010 is about 44 percent; tertiary gross enrolment as at 2005 is as low as 10 percent (Ausukuya & Clark, 2013 and total secondary gross enrolment ratio has been on the decrease since 2013 from 56.18% to 41.98% in 2016. JAMB Data shows insufficient number of University seats is not helping as only 415,500 out of 1,428,379 applicants were admitted into the University in 2015, which is a ratio of two to one (World Education News & Reviews, 2018). Low completion rate is mainly caused by economic hardship (high cost of education) generally and child labour for girls (Education in Nigeria, 2016).

Asides from low completion rate from all levels of education, there is also the issue of high dropout rate at all levels of education. Former President Goodluck Jonathan admits that especially in Northern Nigeria, school dropout rate is as high as 70% due to fear of terrorism and insecurity in the nation (Usman, 2014). Primary school dropout rate is about 4.7 million children despite increased net enrolment rate, that is, 30 percent of students in primary school dropout and only about 54 percent of primary students make it to junior secondary schools (UNICEF, 2016). This increasing and high number of dropout rates is mainly caused by poor financial status, poor academic performance and low social value for education (ScholarsWorks, 2013) and health problems (Pierrakeas, Xenos, Panagiotakopoulos, & Vergidis, 2004).

Most research studied the impact of education on health and not the reverse (Suhrccke, 2011). Some results state that reverse causality (that is, the effect of health on education) does not exist as it has not been proved. Fonseca & Zheng (2011) used Probit and IV estimates and controlled for endogenous factors and found insignificant result of education on hypertension. However, some studies proved via research that bi-causality or reverse causality exists between education and health. Some researchers used compulsory schooling to test effect of health on education but finds little returns of health to education (Clark & Royer, 2010; Lleras-Muney, 2005). Another study used nutritional effect, focus groups and ethnographic techniques and gets an inconclusive result which raises questions for clarity sake (Bloom, 2005). A study carried out using NDHS in 2013 used mainly sexually transmitted infections (STI's) to measure health and found literacy to be associated with some aspects of health (Lam, Broaddus, & Surkan, 2013). Recently, Couper, Ray, Blaauw, Ng'wena, Muchiri, Oyungu & Conco (2018) investigated mid-level health workers from the perspective of revised training curriculum in Uganda, South Africa, Nigeria and Kenya. Again, Brydges & Mkandawire (2018) explored health from the angle of disabled children. Most of these studies are quite restrictive for generalisation purposes. However, this study combines geographical, socio-demographic characteristics and socio-economic factors namely residence, age and wealth index (as proxy to income) respectively to ascertain bi-causal relationship between educational attainment and health status in Nigeria.

### *1.1. Objective & Significance of the Study*

This research broadly aims to investigate the relationship between health status and educational attainment in Nigeria.

The specific objectives are:

- To analyse the effect of health status on educational attainment in Nigeria.
- To determine the extent to which socio-demographic factors like age, wealth index and type of residence together with health status affect educational attainment in Nigeria.

This research work will be relevant to policy makers in making and implementing plans to revive these sectors in Nigeria.

### 1.3. Research Questions

- What relationship exists between health status and educational attainment in Nigeria?
- To what extent has health status impacted on educational attainment in Nigeria?
- To what extent do socio-demographic factors (like age, wealth index and type of residence) together with health status affect educational attainment in Nigeria?

### 1.4. Hypotheses of the Study

#### 1.4.1. Hypothesis 1:

- $H_0$ : There is no significant relationship between health status and educational attainment in Nigeria
- $H_1$ : There is significant relationship between health status and educational attainment in Nigeria

#### 1.4.2. Hypothesis 2

- $H_0$ : Socio-demographic factors (like age, wealth index and type of residence) together with health status do not affect educational attainment in Nigeria.
- $H_1$ : Socio-demographic factors (like age, wealth index and type of residence) together with health status affect educational attainment in Nigeria.

## 2. Literature Review

Educational attainment can be defined as the highest form of education attained by an individual (US Census Bureau Glossary, 2015). It can be used as proxy to the stock of education human capital, and skills gained to the populace as a result of education (OECD, 2013). Educational attainment comprises primary, secondary and tertiary education. While healthcare utilization refers involves the use, consumption of available health care services, facilities and resources in managing one's health. It includes the frequency of visits to the hospital, the use of drugs and generally various ways to maintain one's health such that optimization of healthcare resources leads to maximum health (Farlex, n.d.).

Nigeria is the most populated country in Sub-Saharan Africa enriched with numerous resources- both human and material including numerous and potentially economically active youths that could contribute positively to sustainable growth (Adeoye, Sangosanya & Atanda, 2012) via a very powerful labour force. Despite this endowment, growth is yet to be sustained in Nigeria.

Report has it that though the national certificate of education (NCE) is the least requirement for primary school teachers, 23 percent of more than 400,000 teachers in Nigerian primary schools are lacking the teachers' grade two certificate (Ogbeifum & Olisa, 2010). Also, there is the issue of diversions of fund and loans gotten from both international sources like World Bank and domestic sources (federal government) for personal use and using the remnant of money left after diversion for the purchase of irrelevant textbooks and equipment (Bollag, 2002).

### 2.1. Determinants of Education and health

#### 2.1.1. Determinants of Education

According to Simkins (2006), one of the determinants of education is the availability of funds. Most people can access lesser funds and so might not be able to invest so much into education. Some may receive scholarships. Others may be born into rich families, may have free-giving parents, borrow on favourable terms or willingly forego consumption to invest large amounts in their education. He also noted that family background is also a major determinant, especially if income inequality is relatively high. He considered settlement type, school attended and liquidity constraints as factors that limit chances of equal educational opportunity. Suryadarma & Suryahadi (2009) find insignificant and small impact of poverty on senior secondary completion. Large literature is available on the association among individual attributes, family background, and education attainment (Wolfe & Haveman, 1995; Glewwe, 2002).

Bacolod & Ranjan (2008) found family wealth and child skill to majorly determine if a child works, goes to school, or engages in none; likewise, children with high-skills have greater probability of attending school compared to children with low skills, even in poor families. Whereas, Appleton, Hoddinott & Knight (1996) found acquired skills during primary education to have extra benefits via higher chances of post-primary school completion.

John Hopkins urban health institute (2015) grouped the determinants of health into in-school factors and out-of-school factors. Out of school factors include factors like family income, parental education level, and a multitude of health issues. Torssander (2012) suggests that gender of children and parents appear to have a vital part in educational attainment.

#### 2.1.2. Determinants of Health

Characteristics like socio-economic status (e.g. maternal educational level, line of work, family earnings, accessibility to health centres with respect to transport availability and time spent on transportation to hospital from

home, decision making, disposition of health staff); age, marital status, equality, religion, are health determinants (Esen & Sappor, 2013).

Adamu & Salihu (2003) identified diverse socio-cultural factors like illiteracy and purdah limitations as hindrances to women's usage of hospital delivery in rural Kano, North-West Nigeria. Also associated with this problem is juxtaposition to facilities, price and standard of care. Socioeconomic factors such as husband's job, prosperity level, and financial constraints affect the maximization of maternity services in Nigeria and beyond (Ononokpono & Odimegwu, 2014). An individual's socioeconomic resources (Elo, 2009; Geyer et al. 2006; Torssander & Erikson 2010), that of their partners' (Lager et al. 2011; Skalická & Kunst 2008; Torssander & Erikson 2009), and their parents' (Galobardes et al. 2004; Kuh et al. 2002; Næss et al., 2004) are connected to health and lifespan. Guo & Harris (2000) used child's poor health as indicator of health and discovered that at birth, it was a hindrance to children's intellectual development using young people as survey in the United States. On the other hand, Kaestner & Corman (1995) found from the same study a rather weak relationship between childhood health and intellectual advancement. Other studies measured benefits via mortality rates, life expectancy among others. Improved education alongside increased access to health amenities will probably result in lasting effect in minimizing mortality of mothers (Ononokpono & Odimegwu, 2014).

According to Suhrcke (2011), some major determinants at the micro level are: household socioeconomic level; ethnicity; gender; arrangement of siblings; value relating with future or discount rate; and individual's natural ability (Cutler & Lleras-Muney, 2006; Fuchs, 1982; Smith, 2008 and Currie, 2008). Factors determining children's and youths' involvement at the meso level are: society, neighbourhood and school features; access to information, social media and friends' custom (Klingeman, 2003). At the macro-level, cross-country or cross-regional differences in health and/or education-related policies and programs help to identify causal links between health and education.

## 2.2. *The Relationship between Educational Attainment and Healthcare Utilization*

According to Cutler & Lleras-Muney (2006), broadly speaking, three possible explanations exist for the connection between health and education. The first is that ill health leads to low schooling levels. Second, greater education boosts health. Lastly, third factors might exist that increase both schooling and health.

One study finds that an extra year of school minimizes the probability of death in the succeeding 10 years by 3.6 percent for those born in the United States between 1914 and 1939 and that there is large causal effect of education on health with mortality rate as an independent variable and she calculates that an extra educational year boosted life expectancy at age 35 by 1.7 years in 1960 in the United States (Lleras-Muney, 2005). Currie & Moretti (2002) use coefficients from their instrumental variable estimation to approximate 12 percent of declined probabilities of low birth-weight between the 1940s and 1980s in the United States and 20 percent reduction in probabilities of preterm birth to be attributed to higher maternal education. Another study finds an extra year of school likely to diminish bad health by 18.5 percent for Swedish men born between 1945 and 1955 (Spasojevic, 2003). Enrolling and staying in college for at least two years reduces the likelihood of smoking during pregnancy by 5.8 percent for women in the United States. Between age 0 and 15, children with low birth-weight sustain additional \$5.5 to \$6 billion in health, education, and other costs in relation to children with normal birth-weight. Groot & Brink (2006) contend that one educational year improves the Quality Adjusted Life Years weight (QALY) by 0.036, that is, 28 years of education for 1 QALY and that the costed health gains of education equals about 15-60 percent of the wage effect which signify low educational investment. The OLS results also suggest that women who complete high school will have heavier and taller children than the average children of women who dropped out (Lillard, Simon & Ueyama, 2006)

Oreopolous (2003), Arendt (2005) and Spasojevic (2003) found increased minimum schooling laws in England and Ireland, Denmark and Sweden respectively, to revamp the population's health. Using nationwide compulsory schooling law changes, Oreopolous (2006) found substantial association between education and SRH in UK and inverse impact of education on physical and cognitive disability in the US. Silles (2009) used differences in compulsory schooling laws of the United Kingdom found that increased schooling causes higher self-reported good health and lesser chances of prolonged sickness as well as activity and work constraining experience. Evaluating the 1947 and 1972 differences to British compulsory schooling laws via regression discontinuity methods, Clark & Royer (2010) found minimal evidence of extra schooling boosting health outcomes and behaviours. Albouy & Lequien (2009) found no substantial causal impact of education on mortality using two increases on minimum school age as educational instruments of French longitudinal dataset.

Taras & Potts-Datema (2005) inferred that though positive association was ascertained between school absenteeism and asthma, only a third of research showed asthma to substantially affect scores. Silverstein et al. (2001) concurred that school results of asthmatic children with two extra days of absenteeism in the United States was identical to those with no asthma. However, the result of a similar study by Popoola, Igwilo & Sowunmi (2013) showed that awareness and practice of breast cancer preventive methods, especially breast self-examination and mammography, increased with educational attainment level. Researchers discovered gains of diabetes self-management education to be greater knowledge, productive self-care actions, and healthier clinical results including reduced HbA1c levels and proneness to serious complications (Norris, Lau, Smith, Schmid & Engelgau, 2002), reduced weight, and advanced quality of life (Steed, Cooke & Newman, 2003). Ogundari & Awokuse (2018) carried out a panel analysis on likely effects of human capital on Sub-Saharan Africa's growth covering 35 countries from 1980 to 2008 and agrees that neither health nor education are perfect substitutes as they are equally important.

Heisler observed the medical records of 1,032 diabetic patients, and deduced the mean of HbA1c to adjust from 8.3 percent to 7.3 percent and self-care behaviours (drug usage, self-monitoring of blood sugar, diet, exercise and foot

care) to be linked with lower HbA1c. The connection between education and health rises with age, as greater correlation exists among older populace than younger populace e.g. accumulative risk like smoking and excessive alcohol leads to noticeable physical health contrasts subsequently in lifespan (Hammond, 2002). Moreover, the more educated have greater life expectancy. Life expectancy in Netherlands for men with the lowest educational levels is 5 years below men with university education while for women this contrast is 2.6 years (Oers, 2003). Also, Elo & Preston (1996) found large effects of education on mortality in the U.S. Working-age males and women have death ratios between highest and lowest educational levels at 2:22 and 1.79 respectively. Moreover, Burroway & Hargrove (2018) goes ahead to recommend education as the effective antidote to health issues. Similarly, Bisallah, Rampal, Lye, Sidik, Ibrahim, Iliyasu & Onyilo (2018) suggest education-improving mechanisms of knowledge, attitude and practice (KAP) in dealing with HIV and tuberculosis via a randomised control trial from 2015 to 2017 by dividing 226 respondents into 2 groups.

Descriptive and empirical findings reveal increased demand for health amenities depends on educational levels (Sunkanmi & Olufunsho, 2013). Research show high death rates are more associated to low educational attainment than deaths resulting from smoking, overweight, and lack of exercise (Molla, Madans, & Wagener, 2004; Lantz, House, Lepkowski, Williams, Mero, & Chen, 1998). Scholars observe school dropout to be social boosters of poor health (Freudenberg & Ruglis, 2007) and might promote HIV/ AIDS. Cochrane (1979) while determining the link for World Bank noticed negative association between education and fertility for female education than for males. The association between education and fertility is most probably negative in urbanized than rural areas. Again, people with some education may seem to have higher fertility than those lacking education in nations with high illiteracy rates, while people appear to have lower fertility in nations with low illiteracy rates. The World Population Bureau report (2001) denote that studies in the past two decades revealed that women with greater education generally have their first sexual experience and make later progressions to adulthood, with smaller and healthier families. The UN (1997) also showed that in numerous less developed countries, women with no schooling have about double children as women with ten or greater schooling years. Psacharopoulos & Woodhall (1997) and Tinker et al. (2000) disclosed that women in the poorest families with lower literacy and earnings have the most fertility and usually undergo early entry into motherhood; rampant pregnancies and a repeated cycle of illiteracy and deprivation.

### *2.3. Intermediating Mechanisms for the Relationship between Educational Attainment And healthcare Utilization*

Income is an additionally crucial factor that influences how education influences health; however, empirical inquiries often find that educational impact on health is at least as prominent as its income effect (Feinstein et al., 2006). The positive correlation between education and health can partly be ascribed to income differentials among countries e.g. Behrman & Rosenzweig (2004) find a great inverse correlation between the logarithm of purchasing power parity (adjusted by GDP per worker) and the percentage of low birth weight babies. Low income nations have lesser resources for government funded education and health care, meaning lower income to buy such human assets.

Unseen factors including household background, genes among other distinctions, like the capacity to stall indulgence might expound why the further educated are healthier (Cutler & Lleras-Muney, 2006). They identified various factors that allow mediating association between education and health which includes: Income and access to health care (Autor, Katz and Kearney 2005); Labour market (Lahelma et al 2004); Value of the Future (Murphy & Topel, 2005); Information and cognitive skills (De Walque 2004, 2005; Goldman & Smith, 2002); Preferences (Becker & Mulligan, 1997; Fuchs, 1982; Barsky et al, 1997); Rank (Adler et al 1994, Gallo & Matthews, 2003; McLeod & Kessler, 1990); Social networks (Berkman, 1995).

The results of various researchers vary due to different reasons which includes different research designs used, model specification and different techniques used in measuring the variables. Suhrcke (2011) in studying the effect of health and health behaviours on educational sequels of high-income countries pointed out that there are three main challenges in evaluating the input of individual health to educational yields: reverse causality, omitted variable bias and measurement error.

## **3. Methodology/Theoretical Framework**

This presents the Grossman model of demand for health adopted by Sunkanmi & Olufunsho (2013) in studying parental education and child health care in Nigeria

### *3.1. Education and Demand for Healthcare*

The Grossman model of demand for health uses the household's production function model. Previous theories suggest that increase in human capital stock increases wage rate. However, this model believes that it is a person's knowledge stock increases market and non-market productivity whereas the health stock ascertains how much time to invest in future earnings. Here, health capital is both a consumption and investment good. For the former, it enhances one's health and gives satisfaction/utility in consumption while as an investment good, it aids productivity especially in other aspects of life like health, work, family, etc. The major contribution of this model is distinguishing between health as an output and source of satisfaction to individuals and medical care as an input to health production. Grossman believes that it is the individual that both demands and produces health. In his model, the shadow price of health is a function of several variables' besides the price of medical care. The shadow price of health increases with age if depreciation charge per unit of health stock increases over life time while the shadow price of health decreases with education when more educated persons are effective health producers. Under certain conditions, a rise in the shadow price might concurrently decrease the amount of health demanded and expand the amount of health inputs demanded.

In the Grossman's model, knowledge and education determines efficiency in the production of health. Here, medical care is just one input to health production. Health depreciates over time with age but can be boosted by investment in time, effort, cognition or pursuing healthcare via diets, exercise and the likes. Every individual starts life with a health stock, thus exhibiting similar features to capital. Also, health stock can be used to produce an output of healthy time.

However, the Grossman's model of health has not been so successful empirically because most researchers make use of cross-sectional data which does not allow for full assessment of the dynamic nature of the Grossman's model. According to Zweifel (2012a), this model does not allow prevailing health behaviour to depend on previous behaviours; it does not estimate health to diminish with lower socio-economic status and vice-versa; and finally, it predicts a positive association between health investment and health status while a negative association exists empirically for some cases. Cropper (1977) and Dardani & Wagstaff (1987) fault the model for having a simple deterministic nature including the choice of when to die or live. Ehrlich & Chuma (1990) see its assumption that medical investments in health have constant returns as unrealistic and it fails to determine the length of life. Wagstaff (1993) points out that the presupposition that people can alter their health stock to Grossman's optimum health size as invalid. Another criticism is that it ignores the insurance markets.

However, these criticisms give room for expansion and modification of the Grossman model.

The Grossman model of demand for health showing how consumers maximize their lifetime utility is specified below as:

$$\int_0^R U_w[C(t), H(t)]e^{-\beta t} dt + \int_R^T U_r[C(t), H(t)]e^{-\beta t} dt$$

Where  $U_w[C(t), H(t)]e^{-\beta t}$  represents utility before retirement overtime and  $U_r[C(t), H(t)]$  represents utility after retirement overtime; T represents total life time; R represents age of retirement;  $\beta$  represents discount factor. Time t is the time from which individual begins employment; C (t) is consumption over time and H (t) is health over time. This equation exhibits diminishing marginal returns and an increasing function in both consumption and health.

Therefore, for this study, the Grossman model will be adapted to:

$$\int_0^T U_w[C(t), H(t)] e^{-\beta t} \dots\dots\dots (1)$$

This can be rewritten as:  $U_w = C(t) + H(t) \dots\dots\dots (2)$

**3.2. Model Specification**

Assuming that utility is derived from consuming both health-related goods (H) and other consumption goods(C):  $U = f(H, C) \dots\dots\dots (3)$

Other consumption goods are non-health factors that determine education which include family background, settlement type, parent's educational level, income level, age, etc. However, due to the use of micro data which lacks data for all factors, only age, wealth index (as proxy for income level) and type of place of residence(as proxy of settlement type) is used as non-health factors that affect formal educational attainment.

Assuming that education provides utility and taking health related goods (H) to include: 'sick index' (SI), 'source of drinking water' (SDW), 'share toilet with other households' (STWOH), 'predominance of mosquito net' (PMN), 'treatment of water' (TW), 'current marital status' (CMS), and other consumption goods(C) to include: 'age'(A), 'wealth index' (WI), 'Type of place of residence' (TPR).

Modifying the Grossman model, we have:

$$HNYSS = f(WNI, SDW, STWOH, PMN, TW, CMS, A, WI, TPR) \dots\dots\dots (4)$$

Stating the equation 4 in econometric form:

$$HNYSS = \alpha_0 + \alpha_1WNI + \alpha_2SDW + \alpha_3STWOH + \alpha_4PMN + \alpha_5TW + \alpha_6CMS + \alpha_7A + \alpha_8WI + \alpha_9TPR + \mu(5)$$

Where HNYSS= highest number of years spent in school (highest educational level);

WNI = Wellness index; SDW = Source of drinking water;STWOH= Share toilet with other households; PMN = predominance of mosquito net;TW= treatment of water; CMS= current marital status; A= age of household members; WI= wealth index; TPR= type of place of residence

$\alpha_0$  is the intercept term or slope;  $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7, \alpha_8,$  and  $\alpha_9$  are coefficients to the population parameters;  $\mu$  is the disturbance (error) term.

**4. Data Analysis and Discussion of Results**

Data analysis was carried out using descriptive statistics, frequencies, cross tabulations, Pearson chi-square, ANOVA, regression analysis via the SPSS software package version 24.0. NDHS data for 2008 and 2013 was used. A total of 34, 070 and 38, 522 responded to the NDHS surveys in 2008 and 2013 respectively. NDHS was used due to the limited availability of data in Nigeria for time series analysis.

**4.1. Univariate Analysis**

Univariate analysis is the description of individual variables using a given data set. In this section, frequency distribution is carried out on specific socio-demographic characteristics including sex of household members, age, residence, region and wealth index. Frequency distribution is also carried out on the dependent variable (highest educational level) and selected independent variables, that is, wellness index, source of drinking water, share toilet with other households, predominance of mosquito net, treatment of water and current marital status.

Characteristics	2008		2013	
	Frequency	Percentage	Frequency	Percentage
Gender				
Male	27849	81.7	30848	80.1
Female	6220	18.3	7674	19.9
Age				
0-4				
5-9			2	0.0
10-14	5	0.0	2	0.0
15-19	629	1.8	463	1.2
20-24	2036	6.0	1950	5.1
25-29	3898	11.4	4017	10.4
30-34	4212	12.4	4631	12.0
35-39	4210	12.4	4786	12.4
40 and above	19080	56.0	22671	58.9
Residence				
Rural	23346	68.5	22663	58.8
Urban	10724	31.5	15859	41.2
Region				
North central	6260	18.4	6792	17.6
North East	5458	16.0	5707	14.8
North West	6742	19.8	7960	20.7
South East	4131	12.1	4984	12.9
South	5389	15.8	6126	15.9
South West	6090	17.9	6953	18.0
Wealth index				
Poorest	7261	21.3	5768	15.0
Poorer	6735	19.8	7275	18.9
Middle	7214	21.2	8453	21.9
Richer	6800	20.0	8603	22.3
Richest	6060	17.8	8423	21.9

Table 1: Descriptive/Socio- Demographic Characteristics of Respondents in 2008 and 2013  
Source: NDHS (2008 And 2013)

#### 4.1.1. Interpretation of Frequency Distribution of Selected Socio-Demographic Variables

In 2008, majority of individuals are within the category of 40 and above. However, there was an increase of people aged 40 years and above from 56% to 58.9% while there was a decrease in other categories. Also, majority of respondents lived in the North West and majority of respondents were in the poorest category in 2008 while majority were in the richer category in 2013.

Characteristics	2008		2013	
	Frequency	Percentage	Frequency	Percentage
Highest number of years spent in school				
No education, preschool	13085	39.1	13404	35.2
Primary	7643	22.8	8427	22.1
Secondary	8541	25.5	10684	28.1
Higher	4234	12.6	5569	14.6
Wellness index				
0-40% healthy	104	0.3	71	0.2
40.01-80% healthy	491	1.4	401	1.0
80.01-100% healthy	33475	98.3	38050	98.8
Source of drinking water				
Surface and rain water	984	2.9	378	1.0
Tube, well, spring/dam/lake/river and tanker water	28528	83.8	31291	86.1
Piped, bottled and sachet water	4548	13.4	4655	12.8
Share toilet with other household				
No	12017	54.7	15425	58.4
Yes	9951	45.3	10968	41.6
Predominance of mosquito net				
No	27810	81.7	16376	42.5
Yes	6226	18.3	22124	57.5
Characteristics	2008		2013	
	frequency	Percentage	Frequency	Percentage

Treatment of Water				
No	28946	85.1	33952	88.2
Yes	5045	14.8	4385	11.4
Don't know	37	0.1	157	0.4
Current marital status				
Others (Never married, divorced and widowed)	8336	24.5	9353	24.3
Married	25734	75.5	29169	75.7

Table 2: Univariate Analysis of Highest Educational Level and Other Selected Independent Variables  
Source: NDHS (2008 And 2013)

#### 4.1.2. Interpretation of Frequency Distribution of Highest Number of Years Spent In School and Selected Independent Variables

Majority of respondents have no education or have only attended preschool followed by respondents having secondary education, then primary education and finally greater levels of education by the minority of respondents. Only a minority in 2008 and 2013 had less than 80% of their family members to be sick. There was a decline of respondents who consumed surface and rain water from 2.9% to 1% while those who consumed tube, well, spring/dam/lake /river and tanker water constituted the majority and increased from 83.8% to 86.1%. This could be due to affordability and better quality of water over the surface and rain water. However, those who consumed bottled and sachet water reduced from 13.4% to 12.8% probably due to high cost of purchase.

Those who do not share toilet with other households constitute the majority of respondents. Though majority of the populace in 2008 did not use mosquito net, majority of the populace now use mosquito nets as at 2013. There was an increase in the number of respondents that do not treat their water from 85.1% in 2008 to 88.2% in 2013. On the other hand, there is a reduction in the number of respondents that treat their water from 14.8% in 2008 to 11.4% in 2013. Therefore, majority of the respondents do not treat their water. This could have negative impact on health via water borne diseases and might in turn affect one's ability to learn. Also, majority of the populace is married.

#### 4.2. Bivariate Analysis: Cross Tabulation

This shows the relationship or association between highest educational level (dependent variable) and independent variables (wellness index, source of drinking water, share toilet with other households, predominance of mosquito nets, treatment of water and current marital status, age, wealth index and type of place of residence) for 2008 and 2013.

	Highest Educational level								Pearson Chi-square	
	No education (%)		Primary (%)		Secondary (%)		Higher (%)		2008	2013
	2008	2013	2008	2013	2008	2013	2008	2013		
Wellness index:										
0-40% healthy	0.2	0.1	0.4	0.2	0.4	0.2	0.3	0.3	30.041	26.628
40.01-80% healthy	1.5	1.0	1.9	1.5	1.4	0.9	0.7	0.8	(0.000)	(0.000)
80.01-100% healthy	98.3	98.9	97.8	98.3	98.3	98.9	99.0	98.9		
Source of drinking water:										
Surface and rain water	2.4	0.9	4.1	1.5	2.8	1.0	2.3	0.8	1634.054 (0.000)	1067.468 (0.000)
Tube, well, spring/dam/lake/river and tanker	90.2	91.2	86.0	88.1	79.9	84.1	68.0	73.8		
Bottled, sachet water and others	7.4	8.0	9.9	10.4	17.3	14.8	29.8	25.4		
Share toilet with other households:										
No	67.3	72.5	53.6	54.3	37.2	42.8	57.1	63.9	1199.507 (0.000)	1531.950 0.000
Yes	32.7	27.5	46.4	45.7	62.8	57.2	42.9	36.1		
Predominance of mosquito net: No	82.4	41.7	83.0	38.8	82.8	45.7	75.4	44.6	132.887 (0.000)	104.094 (0.000)
Yes	17.6	58.3	17.0	61.2	17.2	54.3	24.6	55.4		
Treatment of water:										
No	88.4	92.2	85.8	88.4	83.3	85.9	76.9	82.5	366.448 (0.000)	522.207 0.000
Yes	11.5	7.1	14.2	11.3	16.6	13.8	22.9	17.2		
Don't know	0.1	0.7	0.1	0.2	0.1	0.2	0.2	0.3		
	Highest Educational level								Pearson Chi-square	
	No education (%)		Primary (%)		Secondary (%)		Higher (%)			



	2008	2013	2008	2013	2008	2013	2008	2013	2008	2013
Current marital status:										
Others (never married, divorced and widowed)	21.8	23.7	19.7	21.5	30.0	26.6	28.5	24.1	322.126 (0.000)	68.666 (0.000)
Married	78.2	76.3	80.3	78.5	70.0	73.4	71.5	75.9		
Age: 0-4 yrs.										
5-9		0.0		0.0		0.0		0.0	3627.834 (0.000)	3493.129 (0.000)
10-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
15-19	1.3	0.7	1.1	0.6	4.1	2.8	0.5	0.3		
20-24	3.8	3.5	3.6	2.5	11.3	9.1	6.8	5.0		
25-29	7.8	7.2	9.6	6.7	18.0	16.2	13.7	13.1		
30-34	8.4	8.1	11.5	10.3	17.9	16.4	16.2	16.1		
35-39	8.0	8.3	14.0	12.8	16.1	16.2	16.1	15.0		
40 and above	70.6	72.1	60.1	67.0	32.6	39.2	46.7	50.4		
Wealth index:										
Poorest	39.3	33.4	16.4	9.6	7.9	3.2	1.5	0.7		
Poorer	28.4	29.7	21.2	20.7	12.8	11.5	4.0	3.6		
Middle	20.9	22.8	26.9	28.4	21.1	21.3	11.5	11.4	12260.820 (0.000)	15098.08 (0.000)
Richer	9.1	11.0	23.6	27.2	29.7	31.8	27.8	24.6		
Richest	2.3	3.1	11.9	14.1	28.5	32.2	55.1	59.7		
Type of place of residence:										
Rural	18.1	74.9	28.3	61.0	41.8	49.5	57.6	34.1	2887.582 (0.000)	3232.696 (0.000)
Urban	81.9	25.1	71.7	39.0	58.2	50.5	42.4	65.9		

Table 3: Crosstabulation of Dependent and Independent Variables

Source: Author's Compilation (2016)

#### 4.2.1. Interpretation of Cross Tabulation of Highest Number of Years Spent in School and All Independent Variables

Households with the lowest level of health had very few with no education. Households with average health level had most of its family members with primary education and very few with higher education. Households with the highest level of health had most members with higher education. This variable is significant at 1% level. Most individuals that consume surface and rain water had primary education while very little of them had higher education. Majority of those that drink the category of tube, well, tanker water had no education and very few of them have higher levels of education. However, majority of those that consume bottled and sachet water had higher education while very few of them had no education.

Most respondents that do not share toilet with other households had no education while majority of those that share toilet with other households have secondary education. Majority of those that do not use mosquito net had no education while majority of those that use mosquito net have higher education in 2008 and primary education in 2013. Majority of those who do not treat their water had no education while majority of those that treat their water have higher education. Majority of the married, unmarried, separated or widowed have secondary education. Most people that are above 40 years are not educated. Most of the poorest, poorer respondents had no education; most that are average have primary education; the richer respondents had secondary education and the richest respondents have higher levels of education. Most people living in the rural areas had higher education in 2008 and no education in 2013 while most living in the urban areas had no education in 2008 and higher education in 2013.

#### 4.3. Linear Regression Analysis

For years 2008 and 2013, all correlation coefficients are less than 0.50 indicating that no two variables are co-linear (this shown in the appendix II and IV).

R	R square	Adjusted R square	Std error of the estimate	Change Statistics				
				R square change	F change	df1	df2	Sig. F change
.674 <sup>a</sup>	.455	.454	4.21161	.455	1280.689	14	21512	0.000

Table 4: Model Summary for 2008

Number of Obs = 34, 070; R = .674; R-square = .455; Adj R-square = .454

Table 4 shows that the independent variables (health status and socio-demographic factors) explain about 45.4% variation in the dependent variable (educational attainment). This is a fairly strong relationship.

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig
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	B	Std error	Beta		
1 (constant)	8.508	.589		14.446	.000
40.01-80% wellness index	-0.232	0.596	-0.005	-0.389	0.697
80.01-100% wellness index	-0.075	0.546	-0.002	-0.138	0.890
Tube, well, spring/dam/lake/river and tanker	-0.747	0.180	-0.052	-4.139	0.000
Bottled, sachet water and others	-0.736	0.194	-0.049	-3.799	0.000
Share toilet with other households	-0.248	0.061	-0.022	-4.046	0.000
Predominance of mosquito net	0.619	0.074	0.043	8.405	0.000
Treatment of water	0.514	0.064	0.041	8.034	0.000
Current marital status	0.085	0.070	0.006	1.224	0.221
Age of household members	-.103	.002	-.284	-54.933	0.000
Poorest wealth index	-1.194	0.106	-0.071	-11.218	0.000
Middle wealth index	2.582	0.098	0.180	26.333	0.000
Richer wealth index	5.440	0.098	0.409	55.232	0.000
Richest wealth index	8.436	0.104	0.652	81.088	0.000
Type of place of residence	0.527	0.070	0.046	7.056	0.000

Table 5: Coefficients For 2008

#### 4.3.1. Interpretation of Differential Coefficients for 2008

The analysis in Table 5 revealed that 40.01-80% wellness index is more negatively related to the highest number of years spent in school than 80.01-100% wellness index. Also, households with minority (i.e. 40.01-80%) of healthy family members spend lower number of years in school than households with higher number of healthy members. The analysis also revealed that the 40.01-80% and 80.01-100% wellness index are insignificant because their p-values are greater than 0.05. Also, tube/well/spring water is more negatively related to educational attainment than the higher category of piped/bottled/sachet water. So, individuals who consume tube/well/spring water spend lesser years in school than those who consume the category of piped/bottled/sachet water. Both sources of drinking water are significant since their p-values are less than 0.05.

Share toilet with other households is inversely associated with the highest educational level attained. Those who share toilet with other households will spend lesser number of years in school than those who do not share toilet with other households by 0.248 years (i.e. by about 3 months). Sharing toilet with other households is significant since the p-value is significant at 1% level.

Predominance of mosquito net has a positive relationship with educational attainment. Those who use mosquito net spend more years in school than those who do not use mosquito net by 0.5619 years (i.e. by almost 7 months). Also, p-value shows that predominance of mosquito net is significant at 1% level. Treatment of water is positively related to the level of education attained. Those who treat their water are likely to spend more years in school than those who do not treat their water by about 0.514 years (i.e. by about 6 months). P-value shows significance at 1% level.

Current marital status is positively related to the highest number of years spent in school. Married individuals will spend more years in school than unmarried, divorced and widowed individuals by 0.085 years (i.e. by about a month). P-value shows insignificance since the p-value exceeds .05. Age of household members is inversely associated with educational level attained. Older individuals will spend less number of years in school than younger individuals by 0.103 years (i.e. by about 38 days). P-value shows significance at 1% level. The poorest wealth index is negatively related to educational attainment while higher levels of wealth index (middle, richer and richest) are positively related to educational attainment. Richer individuals will spend more years in school than poorer individuals. All forms of wealth index are significant at 1 percent level since their p-values are less than 0.05. Type of place of residence is positively related to educational attainment. Individuals living in urban areas will spend higher number of years in school than individuals living in rural areas by 0.527 years (i.e. by about 6 months). P-value is significance at 1% level.

	Sum of squares	Df	Mean Square	F	Sig
Regression	318029.191	14	22716.371	1280.689	0.000
Residual	381571.674	21512	17.738		
Total	699527.483	21526			

Table 6: Anova Table For 2008

#### 4.3.1.1. Decision Rule

The p-value =.000 which is below .05; hence,  $H_0$  is rejected and  $H_1$  is accepted. Therefore, a significant relationship exists between health status with socio-demographic factors and educational attainment in Nigeria in the year 2008.

Model	R	R square	Adjusted R square	Std error of the	Change Statistics				
					R square	F change	df1	df2	Sig. F

				estimate	change				change
1	.677 <sup>a</sup>	0.458	0.458	4.19429	0.458	1572.010	14	26011	0.000

Table 7: Model Summary For 2013

Number of Obs = 38, 522; R = .677; R-square = .458; Adj R-square = .458

Table 7 shows that the independent variables (health status and socio-demographic factors) explain about 45.8% variation in the dependent variable (educational attainment). This is a fairly strong relationship.

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std error	Beta		
1 (constant)	9.652	.649		14.863	.000
40.01-80% wellness index	-1.190	0.689	-0.020	-1.727	0.084
80.01-100% wellness index	-1.350	0.633	-0.025	-2.132	0.033
Tube, well, spring/dam/lake/river and tanker	-0.114	0.102	-0.008	-1.116	0.265
Bottled, sachet water and others	0.168	0.115	0.010	1.463	0.143
Share toilet with other households	-0.342	0.057	-0.030	-6.053	0.000
Predominance of mosquito net	0.279	0.054	0.024	5.147	0.000
Treatment of water	0.287	0.045	0.029	6.321	0.000
Current marital status	0.627	0.063	0.047	9.875	0.000
Age of household members	-.106	.002	-.294	-63.200	0.000
Poorest wealth index	-1.630	0.101	-0.092	-16.060	0.000
Middle wealth index	2.974	0.093	0.201	31.995	0.000
Richer wealth index	5.550	0.092	0.418	60.074	0.000
Richest wealth index	8.400	0.097	0.680	86.539	0.000
Type of place of residence	-0.523	0.065	-0.046	-8.060	0.000

Table 8: Coefficients for 2013

#### 4.3.2. Interpretation of Differential Coefficients for 2013

The analysis in Table 8 revealed that 80.01-100% wellness index is more negatively related to the highest number of years spent in school than 40.01-80% wellness index. Also, households with majority (i.e. 80.01-100%) of healthy family members spend lower number of years in school than households with lower number of healthy members. The analysis also revealed that the 40.01-80% and 80.01-100% wellness index are significant at 10 percent level while only 80.01-100% wellness index is significant at 5% level. Also, tube/well/spring water is negatively related to educational attainment while the higher category of piped/bottled/sachet water is positively related to educational attainment. So, individuals who consume tube/well/spring water spend lesser years in school than those who consume the category of piped/bottled/sachet water. Both sources of drinking water are insignificant since their p-values are greater than 0.05.

Share toilet with other households is inversely associated with the highest educational level attained. Those who share toilet with other households will spend lesser number of years in school than those who do not share toilet with other households by 0.342 years (i.e. by about 4 months). Sharing toilet with other households is significant since the p-value is significant at 1% level. Predominance of mosquito net has a positive relationship with educational attainment. Those who use mosquito net spend more years in school than those who do not use mosquito net by 0.279 years (i.e. by about 3 months). Also, p-value shows that predominance of mosquito net is significant at 1% level. Treatment of water is positively related to the level of education attained. Those who treat their water are likely to spend more years in school than those who do not treat their water by about 0.287 years (i.e. by about 3.5 months). P-value shows significance at 1% level.

Current marital status is positively related to the highest number of years spent in school. Married individuals spend more years in school than unmarried, divorced and widowed individuals by 0.627 years (i.e. by about 7.5 months). P-value shows significance at 1% level since the p-value is lesser than 0.05. Age of household members is inversely associated with the educational level attained. Older individuals will spend less number of years in school than younger individuals by 0.106 years (i.e. by about 39 days). P-value shows significance at 1% level. The poorest wealth index is negatively related to educational attainment while higher levels of wealth index (middle, richer and richest) are positively related to educational attainment. Richer individuals will spend more years in school than poorer individuals. All forms of wealth index are significant at 1 percent level since their p-values are less than 0.05. Type of place of residence is negatively related to educational attainment. Individuals living in urban areas will spend lesser number of years in school than individuals living in rural areas by 0.523 years (i.e. by about 6 months). P-value shows significance at 1% level.

	Sum of Squares	Df	Mean Square	F	Sig
Regression	387168.899	14	27654.921	1572.010	0.000

Residual	457587.380	26011	17.592		
Total	844756.279	26025			

Table 9: Anova Table for 2013

#### 4.3.2.1. Decision Rule

The p-value is .000 which is below .05; hence the rejection of  $H_0$  and acceptance of  $H_1$ . So, a significant relationship exists between health status with socio-demographic factors and educational attainment in Nigeria in the year 2013.

### 5. Conclusions

In 2008, Table 5 showed a negative and insignificant relationship between wellness index and highest number of years spent in school. Therefore, though higher wellness index will lead to higher number of years in school, it is not significant. Also, a positive and significant relationship was found among predominance of mosquito net, treatment of water, higher levels of wealth index, type of place of residence and highest educational level which conforms with a priori. A positive and insignificant relationship was found between current marital status and highest educational level. However, a negative and significant relationship was found between the two categories of source of drinking water and highest educational level which does not conform with a priori. An inverse but significant association was found between age of household members and sharing toilet with other households and highest number of years spent in school which conforms with a priori. However, the p-value in the Table 6 found all independent variables to be significant with educational attainment in Nigeria, so  $H_0$  was not accepted while  $H_1$  was accepted. Also, R square and adjusted R square in Table 4 found the model to be a fairly good fit.

In 2013, Table 8 showed a negative and insignificant relationship between wellness index and highest amount of years spent in school. Again, positive and significant relationship was found among predominance of mosquito net, treatment of water, higher levels of wealth index, current marital status and highest educational level which conform with a priori. An inverse but substantial association was found between type of residence and highest educational level. However, a negative and insignificant relationship was found between the lower level of water source and highest educational level while a positive and insignificant relationship was found between higher levels of water source and highest educational level which conforms with a priori. An inverse but substantial association was found between age of household members and sharing toilet with other households and highest number of years spent in school which conforms with a priori. However, the p-value in the Table 9 found all independent variables to be significant with educational attainment in Nigeria, so this led to rejecting  $H_0$  and accepting  $H_1$ . Also, R square and adjusted R square in Table 9 found the model to be a fairly good fit.

Hence, health status with socio-demographic factors significantly affects educational attainment in Nigeria in years 2008 and 2013. Though there are other factors responsible for variations in the level of education attained, health status along with socio-demographic factors play an important role as an unhealthy individual, a poor person and an old individual cannot attain the highest level of education which hinders productivity and economic growth in Nigeria. These findings corroborate discoveries of Adeleke et al. (2019), and Brydges & Mkandawire (2018). Moreover, Adeleke, Suleiman-Abdul, Aliyu, Ishaq & Adio (2019) observed that collaborative works of health professionals might involve delegation and substitution of poorly qualified personnel which is a peculiar problem among less developed countries (LDCs). Furthermore, the state's inability to deliver inclusive education, especially for children with disabilities provides a very disheartening situation for parents in poorer nations (Brydges & Mkandawire, 2018). The problem of immunisation is also very prevalent in Nigeria (Burroway & Hargrove, 2018). Hence, it is no wonder that Couper et al. (2018) acknowledge the role of trainings among physicians.

### 6. Recommendations

- This research discovered older people have lower chances of attaining higher levels of education, therefore early enrolment is encouraged.
- Religions should encourage education of family members for better standard of living.
- More education and health institutions should be established in rural areas to aid learning and productivity of individuals.
- Accessibility in the health sector should be enhanced via discount on health bills.
- Health insurance should be encouraged to cater for unforeseen health occurrences.
- Public hospitals that are quite affordable lack adequate health facilities ranging from beds to health instruments coupled with the non-chalant health professionals. Thus, government should provide adequate and quality health facilities.
- Government should also provide adequate and quality educational facilities to aid practical learning and application.
- Increased pay and conducive environment for health workers and professionals and public education staff.
- Committee in charge of facilities in both the health and educational sector should be set up to prevent vandalization and ensure long and maximum usage.
- Professionals in both sectors should be trained on proper usage of facilities.
- Private institutions in both sectors should be refrained by the government from charging exorbitant prices to encourage maximization of services and utility provided by both sectors.

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