**AIU Exam – Epidemiology – The Study of Health in a Community**

**Subject of Courses**: Public Health

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**Introduction**:

A physician is primarily concerned with the health of an individual, whereas, epidemiology focuses on the health of a given population. It seeks to know what the sick people have in common, tracing the origin of the health event, how it spreads and the the number of people affected. Any unexpectedly large number of a particular health event in a particular population at a particular time and place is termed epidemic; and the investigator who studies the aforementioned is referred to as an epidemiologist. Occasionally, an epidemic may spread over a large area, cutting across nations, continent and even, the world, this is correctly referred to as Pandemic e.g. Covid-19 Pandemic.

Of huge importance is numbers to epidemiologist; the number (rate) of health events in a defined population. This includes natality (birth) rate, morbidity (sickness) rate, and mortality (death) rate. Even, incidence (new cases) rate, attack rate and prevalence rate are of interest to epidemiologists.

Natality and Mortality rates are two important factors that determine the health of a population. Over the years, there has been a shift in the leading causes of death in the United States. It moved from infectious communicable diseases such as influenza, neoplasms (cancer) gastrointestinal infections (in the 1900s) to non-communicable diseases such as heart diseases, chronic lower respiratory disorder, unintentional injuries (i.e. accident) and other leading causes of death in the 21st century.

Just as much as numbers, data is of huge importance to epidemiologists in the planning of health programs, interventions and /or facilities. The data could be Primary (original information obtained first hand) or secondary (obtained from someone who already collected it). The U.S. Census, National Vital Statistics Reports, the National Health Interview Survey, the National Health and Nutrition Examination Survey, as well as Morbidity and Mortality Weekly Reports that contains reported cases of specified notifiable diseases (i.e. infectious diseases that can potentially become epidemic and for which health officials are mandated by law to maintain weekly records)

**Questions:**

**1. What is an epidemic? A pandemic? Name some diseases that caused epidemics in the past. Name some diseases that are epidemic today.**

The US Center for Disease Control and Prevention through Wikipedia defines epidemic broadly to be "the occurrence of more cases of disease, injury, or other health condition than expected in a given area or among a specific group of persons during a particular period. Usually, the cases are presumed to have a common cause or to be related to one another in some way"

James F. McKenzie and co. (2016) said, a disease outbreak is not considered to be epidemic based on a particular number of cases (say 10cases?, 100cases or 1,000cased). The consideration of an outbreak to be epidemic depends on the DISEASE and the POPULATION. It's therefore defined to be "any unexpectedly large number of cases of an illness, special health-related behaviour, or other health-related events in a particular population at a particular time and place"

Some diseases that has caused epidermic in the past includes, but not limited to:

**Flu (Influenza):** Influenza viruses constantly evolve by the mechanisms of antigenic drift and shift. The predominant natural reservoir of influenza viruses is thought to be wild waterfowl. Analyses of antibody titers of 1918 influenza survivors from the late 1930s suggested correctly that the 1918 virus strain was an H1N1-subtype influenza A virus, closely related to what is now known as “classic swine” influenza virus. It is estimated that about 500 million people or one-third of the world’s population became infected with this virus. The number of deaths was estimated to be at least 50 million worldwide with about 675,000 occurring in the United States.

**Plague:** Plague is caused by the bacteria Yersinia pestis, a zoonotic bacteria usually found in small mammals and their fleas.There are two main clinical forms of plague infection: bubonic and pneumonic. Bubonic plague is the most common form and is characterized by painful swollen lymph nodes or 'buboes'.Historically, plague was responsible for widespread pandemics with high mortality. It was known as the "Black Death" during the fourteenth century, causing more than 50 million deaths in Europe.

**Smallpox**: One of history’s deadliest diseases, Smallpox. During the 18th century the disease killed an estimated 400,000 Europeans each year, including five reigning monarchs, and was responsible for a third of all blindness.. it is also estimated to have killed more than 300 million people since 1900 alone. The virus that causes smallpox comes in two forms—the relatively mild Variola minor and its deadlier cousin, Variola major. Over the course of millennia, these tiny infectious particles traveled the globe along trade and exploration routes, afflicting victims with high fevers and numerous raised lesions on their skin. Death followed in one-third of Variola major cases. Even when victims survived, smallpox often left the survivors scarred for life.

**Cholera**: Cholera is an extremely virulent disease. It was and remains a global threat to public health. During the 19th century, cholera spread across the world from its original reservoir in the Ganges delta in India. Six subsequent pandemics killed millions of people across all continents. The current (seventh) pandemic started in South Asia in 1961, reached Africa in 1971 and the Americas in 1991. According to WHO, Cholera is now endemic in many countries. Researchers have estimated that each year there are 1.3 to 4.0 million cases of cholera, and 21 000 to 143 000 deaths worldwide due to cholera.

**HIV/AIDS**: Acquired immunodeficiency syndrome (AIDS) is a fatal disease caused by the slow-acting human immunodeficiency virus (HIV). The virus multiplies in the body until it causes immune system damage, leading to diseases of the AIDS syndrome. HIV emerged in Africa in the 1960s. First identified in Democratic Republic of the Congo in 1976, HIV/AIDS has truly proven itself as a global pandemic, killing more than 36 million people since 1981. Currently there are between 31 and 35 million people living with HIV, the vast majority of those are in Sub-Saharan Africa.

**Anthrax**: Anthrax, a potentially fatal infection, is a virulent and highly contagious disease. In the 1900s, human inhalation anthrax occurred sporadically in the United States among textile and tanning workers. However, an outbreak of inhalation anthrax occurred in Sverdlovsk near a Soviet military microbiology facility in 1979. This epidemic represented the largest documented outbreak of human inhalation anthrax in history. And in recent times, "The Federal Ministry of Health has asked Nigerians participating in the 2023 Hajj to take some precautionary measures due to the outbreak of Anthrax disease in some West African countries. one of Nigeria's daily newspaper." as reported by Nigeria's daily newspaper, Premium Times, June 14, 2023.

**2. Why are epidemiologists sometimes interested in epizootics?**

RxList"s medical dictionary defines epizootics to be "An epidemic outbreak of disease in an animal population, often with the implication that it may extend to humans." Epidemiologist are sometimes, interested in epizootics because some epidemics begin as an outbreak of disease in animals and then spread to human population.

It is estimated that, globally, about one billion cases of illness and millions of death occur every year from zoonosis. Some 60% of emerging infectious diseases that are reported globally are zoonoses. Over 30 new human pathogens have been detected in the last three decades, 75% of which have originated in animals.

United Nations in an article published in July 2022, titled "in Africa, 63% jump in diseases spread from animal to human seen in the last decade" the article partly reads, "between 2001- 2022 there were 1843 substantiated public health events recorded in the WHO African region. Thirty percent of these events were zoonotic disease outbreaks. While these numbers have increased over the past two decades, there was a particular spike in 2019 and 2020 when zoonotic pathogens represented around 50% of public health events." The article further stated that "The latest data on monkeypox finds a significant increase in cases since April 2022, compared to the same period in 2021. The increase is mainly observed in the Democratic Republic of the Congo and Nigeria"

**3. What does the term endemic disease mean? Give examples of such diseases.**

Endemic diseases are diseases or illnesses present permanently in a region or a given population. It is a disease that is constantly present or maintained at a baseline level, without extra infections being brought into the group as a result of travel or similar means. It can also be said to be diseases that occur regularly in a given population, but are not epidemic i.e. cases or health events occurs at a steady, predictable number. Although, the number can be high (hyperendemic) or low (hypoendemic).

For example, chickenpox is endemic (steady state) in the United Kingdom, but malaria is not. Although, there are a few cases of malaria reported in the UK yearly, sustained transmission is not attained. Heart diseases are endemic in America while in regions of Africa, Malaria is endemic. Other examples of endemic disease are Common Cold, Rotavirus, Measles, and Polio etc.

**4. What is the difference between natality, morbidity, and mortality?**

Natality (also known as birth rate) is the ratio of total live births to total population in a particular area over a specified period of time it's often expressed as child births per 1000 people (or population) per year. It's the greatest influence on a population's increase and along with mortality rate, natality rate is used to calculate the dynamics of a population. They are the key factors in determining whether a population is increasing, decreasing or staying the same in size. Natality increases the population size and its density.

Morbidity is the state of being symptomatic or unhealthy for a disease or condition. It is usually represented or estimated using prevalence or incidence. Prevalence describes the proportion of the population with a given symptom or quality. Morbidity is considered in light of the disease in question. Some diseases are highly contagious, while others are not. Similarly, some diseases are more likely to affect one demographic than another. Morbidity rates help doctors, nurses, and scientists to calculate risks and make recommendations for personal and public health matters accordingly

Mortality (also known as Death Rate) is related to the number of deaths caused by the health event under investigation. It can be communicated as a rate or as an absolute number. The rate at which humans die varies tremendously by geographic location, wealth, incidence of illness (morbidity), age, etc. For this reason, there are several different kinds of mortality rates, such as the maternal mortality rate (number of deaths of mothers due to child bearing), infant mortality rate (number of deaths of children under one year of age), or age-specific mortality rate (total number of deaths of a particular age group). It decreases the population size and density.

**5. Why are rates important in community health?**

A rate is the number of health events (births, cases of disease, or deaths) in a given population over a given period or at a given point in time. It measures the frequency with which an event occurs in a defined population over a specified period of time.

Rates are important because it helps in comparing health event (disease, death, and/or birth) frequency in different locations, at different times, or among different groups of persons with potentially different sized populations. It puts health event frequency in the perspective of the size of the population. For instance, using rates makes it possible to determine whether there are more cases of suicide per capita this year than there were the previous year or whether there are more Malaria per capita in City X than it is in City Y.

Knowing the rate of occurrence of health related events helps us to understand how many people are affected by such events, if those numbers are changing, and how the event affects our society and our economy.

It also helps epidemiologists study the pattern of health events, to make projections, recommendations, to proffer solutions and means of eradication (in cases of diseases and disorder), suggest preventive measures in the future.

For example, suppose one wish to compare deaths among young children of different races. In 2012, it was reported that there were 2,958 deaths among white children aged 1–4 years and 1,021 deaths among black children in the same age group. Without calculating rates, one might assume that deaths were more common among young white children. However, knowing the population at risk, one could calculate the death rate for each race. Which is given by;

Number of event i.e. Number of deaths

Total Population Population at risk

|  |  |  |
| --- | --- | --- |
|  | White | Black |
| Number of deaths | 2.95 | 1021 |
| Number at risk (population) | 12.043.507 | 2.734.701 |
| Death rate (per 100.000 population) | 24.6 | 37.5 |

*Data from: Murphy, S.L., Kochanek, K.D., Xu, J., and Heron, M. (2015). “Deaths: Final Data for 2012.” National Vital Statistics Reports, 63(9). Hyattsville, MD: National Center for Health Statistics. Available at http://www.cdc.gov/nchs/data/nvsr/nvsr63/nvsr63\_09.pdf.*

These rates have greater meaning because they are based on the population at risk, those who are susceptible to disease or death from a particular cause. In this case, the death rate is actually higher among black children aged 1-4 years, thus deaths are actually more common among young black children.

**6. What is the difference between crude and adjusted rates?**

By definition, Crude Rate is the ratio of the number of events in the population being studied during a certain time period to the estimated (total) population size. They are those in which the denominator includes the total population.

An adjusted rate is an artificially created figure that enables comparison across time and space. It should only be compared with another adjusted rate that was computed using the same "standard" population. However, it does provide a single figure which can be easily used and adapted for comparative analysis.

|  |  |
| --- | --- |
| Crude Rate | Adjusted rate |
| It is the real/specific figure obtained | It is an artificially created figure |
| It is an indicator of absolute level of health -related occurrence/cases in a given population | It is basically useful in comparison across age, sex, time and space |
| It is only useful when comparing similar population. | It can be adjusted to permits comparison of populations that vary in composition. |
| Not recommended in analysis because it generates large amounts of data which can become difficult for user and audiences to digest. | Recommended for analysis because it does generate a single figure which can be easily used and adapted for comparative analysis. |

**7. Why are prevalence rates more useful than incidence rates for measuring chronic diseases?**

Chronic diseases are I'll health conditions that usually lasts for 3 months or longer and may get worse over time. They usually don't get cured, but managed. Unlike acute diseases in which the peak severity of symptoms occurs and subsides within days or weeks. And prevalence is a measure of disease burden in a given population at a given period of time. It factors in all current cases (both the old and the new).

Prevalence rate is therefore useful in measuring chronic diseases because:

* It is a measure of the burden of disease in a population in a given location and at a particular time, as represented in a count of the number of people affected.
* Since prevalence increases where there is prolonged duration (as seen in chronic diseases), it is therefore a tool to effectively study the medical condition, gives time to understand the condition, make recommendations for its treatment and prevention.
* It helps in the planning and the determination of public health programs or interventions needed per time in a given population.
* It also help to determine the medical personnel and facilities needed in a given population at a particular time i.e. it is a great tool for planning the allocation of healt resources and/or services.

**8. What is an infant mortality rate? Why is it such an important rate in community health?**

Infant mortality is the term used to describe the death of a baby that occurs between the time it was born and 1 year of age. It is typically defined as the number of deaths of infants under one year of age in a given year per one thousand live births. In addition to giving us key information about maternal and infant health, the infant mortality rate is an important marker of the overall health of a society.

The importance of infant mortality rate in community health

* Death can be clearly defined. While it is often difficult to precisely measure the level of wellness or that of ill health. Therefore, mortality statistics, particularly infant mortality, continue to be the single most reliable indicator of a population’s health status.\
* Infant mortality rate is an important factor in understanding a population’s overall health because many factors that contribute to infant deaths also affect the health of everyone in a population. For example, access to medicine, trained healthcare providers, water sanitation, poverty and malnutrition affect everyone’s health, but can also have a dramatic effect on infant mortality rates.
* Although infant mortality rate (statistics) do not completely describe the health status of a population, it can be used to calculate other useful tools used in measuring the health status of a community; e.g;

Life Expectancy (which is the average number of years a person from a specific cohort is projected to live from a given point in time.) and,

Years of Potential Life Lost (providing a measure various diseases and the overall community health.) It weights deaths such that the death of a very young person counts more than the death of a very old person.

* Mortality rate, together with birth rate governs the population structure which is one of the tools used in effective planning and distribution of resources (financial, medical etc.)

**9. What are notifiable diseases? Give some examples.**

Notifiable diseases that, when diagnosed, requires health providers (usually by law) to report to state or local public health officials. These diseases are of of public interest because of their contagiousness, severity, or frequency. They have the potential to become an epidemic. Therefore, health officials are required to maintain weekly records.

Examples of notifiable diseases includes, but not limited to the following;

* Cancer (Notification for all confirmed cases should be made at least annually.)
* Cholera
* Cryptosporidiosis
* Cyclosporiasis
* Giardiasis
* Hepatitis (A, B or C)
* Influenza-associated mortality, pediatric
* Legionellosis
* Malaria
* Small pox
* Shigellosis
* Typhoid fever
* Viral hemorrhagic fever diseases: Ebola, Marburg, Lassa etc.)
* Yellow Fever

**10. In general, contrast the leading causes of death in the United States in 1900 with those in 2013. Comment on the differences.**

The overall mortality rate in the United States declined markedly over the 20th century. In 1900, the top 3 causes of death were infectious diseases—pneumonia and Influenza, tuberculosis, and gastrointestinal infections (diarrhea, diphtheria; coming up as 10th leading cause of death), It was predominantly infants and children that died from these diseases. But by 2013, there was a huge decreases in infectious diseases associated death rates, and infact, many are no longer among the leading causes of death in the United States.

Strategic public interventions, government policies, health education, Improvements in sanitation, improved housing and diet, investment in public health such as vaccination development & delivery, epidemiological research, discoveries & intervention, synthesis of new strains of antibiotics etc. are some of the factors responsible for the aforementioned decrease.

However, as the impact of these diseases has been reduced or eliminated (for some cases), mortality rates from other causes, especially chronic diseases, such as heart disease and cancer, have increased, and new diseases, such as noninfectious airways diseases, diabetes, and suicide, are now among the top 10 leading causes of death.

Non-communicable diseases have replaced communicable diseases as the leading causes of death, and unlike in centuries past, deaths have become concentrated in the older ages rather than in the younger.

Huge improvements have been made in the prevention, management, and treatment of heart disease and stroke, and their risk factors, which has underpinned much of the decline in death rates. However, some modifiable risk factors for heart disease and stroke, such as high body mass index (excess weight) and diabetes, have not declined which could affect the downward trend in the death rate over time.

**11. At what ages is life expectancy calculated? What does it tell us about a population? Which country has the longest life expectancy?**

Health statisticians often calculate life expectancy at birth, at the age of 65years and more recently, at the age of 75years. Although, life insurance companies are interested in life expectancy at every age.

Life expectancy is defined as the average number of years a person from a specific cohort/population is projected to live from a given point in time if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at that particular time (often for a specific year). It tells us about the health status of a particular population and it is therefore, a standard form of measurement used to compare the health status of various populations.

It reflects the overall mortality level of a population. It summarizes the mortality pattern that prevails across all age groups - children and adolescents, adults and the elderly. It, however is not necessarily a useful predictor for any one individual, neither does it certainly describe the quality of one’s life.

Increase in life expectancy of a given population suggests whether or not a population has identified, understands and have managed to control the factors that contribute to early death.

The highest life expectancy figures are reported in Japan with male having 80yeras while female, 87 years (84 years for both male and female) - according to WHO global health indicator 2015. But according to recent statistics by World Bank group (2021), Hong Kong (whose value was reported to be 85.29 years) has overtaken Japan, (whose life expectancy has dropped to 85.03years)

**12. What are years of potential life lost (YPLL)? How does calculating YPLL change the way we think about the leading causes of death?**

The concept of Years of Potential Life Lost (YPLL) involves estimating the average time a person would have lived had he or she not died prematurely. It is one of the most frequently used indices to quantify the burden of disease, which is one of the practices in mortality statistics to determine the relative importance of the various causes of death.

Calculating YPLL reveals that the leading causes of death using crude or age-adjusted rate and number of death is not necessarily responsible for the years of potential life lost.

it reflects the mortality trends in younger age groups and they provide a more accurate picture of premature mortality.

It helps quantify social and economic loss owing to premature death, and it has been promoted to emphasize specific causes of death affecting younger age groups.

It is very useful for prioritizing public health and health services management since mortality in older age groups is less amenable to health services or public health intervention than among younger age groups. Preventing deaths among younger persons is a major public health goal. Therefore, YPLL weights deaths such that the death of a very young person counts more than the death of a very old person.

The primary and probably most effective use of YPLLs is for ranking of leading causes of death which will be quite different using YPLLs compared to the usual rankings by crude or age-adjusted death-rates and numbers of deaths. Although most deaths occur at advanced ages, more years of potential life are lost for deaths among younger age groups, especially for certain diseases (HIV/AIDS), many external causes (accidents, suicides, homicides), and early life stage conditions, such as congenital anomalies. The impact of behavioral risks can also be evaluated using YPLLs, particularly regarding smoking, work-related illnesses, and injury (National Center for Injury Prevention and Control, WISQARS YPLL Reports

YPLL is calculated by subtracting a person’s age at death from a predefined, standard age. Usually, 65 or 75

**13. How would you define disability-adjusted life years (DALYs)? How would you define health-adjusted life expectancy (HALE)?**

Disability-adjusted Life Years is measure to assess the overall burden of a disease in a given population. It is a time-based measure that takes into account years of life lost due to premature mortality (YLLs) and years of life lost due to time lived in states of less than full health, or years of healthy life lost due to disability (YLDs)

One DALY represents the loss of the equivalent of one year of full health. DALYs for a disease or health condition in a given population is the sum of the estimated total years of life lost together with the total estimated years lived with a disability (YLDs).

Health-adjusted life expectancy is the number of years in full health that an individual can expect to live given the current morbidity and mortality conditions. It refers to a more comprehensive indicator than that of life expectancy because it introduces the concept of quality of life.

Health-adjusted life expectancy uses the Health Utility Index (HUI) to weigh years lived in good health higher than years lived in poor health. Thus, health-adjusted life expectancy is not only a measure of quantity of life but also a measure of quality of life.

**14. What is the U.S. Census? How often is it conducted? What types of data does it gather?**

Epidemiological and demographic data are important in public/community health because they are used in the planning of public health programs and facilities. These data could be Primary (original information obtained, first hand) or Secondary (collected from another person source that is not the direct correspondent, possibly for another purpose).

The U.S. Census is one of the Secondary sources of data. It is an enumeration of the population living in the United States. It attempts to count every person residing in the U.S. it was first conducted in 1790 for the purpose of apportioning representation to the House of representatives. However, census forms has been modified over the years to capture more complex data such as income, employment, family size, education, dwelling type, and many other social indicators.

The United States Census data are important in (amongst other things) determining the number of seats a state occupies in the U.S. House of Representatives, as well as how federal funding is spread across the country. Its important particularly to health workers because they are used for calculating disease and death rates and for program planning. An area with a large number of elderly citizens, for example, may qualify for more funding for hospitals and nursing homes.

How often is it conducted?

The U.S. Census takes place every 10years as legally mandated by the construction of the United States and it is being conducted by the Bureau of the Census, a part of the U.S. Department of Commerce. The exercise was last conducted on the 1st April, 2020; and is projected to be carried out again in 2030.

Unlike the United States, Nigeria's first census as a political entity took place in 1952/53. Since then, irregular censuses have been conducted in 1962, 1962/63, 1973, 1991, and 2006. Seventeen years after the last census exercise, the country is yet to conduct another census which is against the 10 years recommendation of the United Nations for countries to do the exercise. Consequently, the country has over the years relied on population estimates by the United Population Development Fund (UNFPA) to estimate her population.

What types of data does it gather?

Below are the categories of data being gathered during census (according to Michigan State University);

* Basic population characteristics. Including age, sex, marital status, household composition, family characteristics, and household size.
* Economic measures including labor force participation, occupation, place of work, employment-related industry, and educational attributes such as school attendance, educational attainment, and literacy.
* Geographic and migration information is also collected.
* Questions on place of birth, place of usual residence, duration of residence, and prior place of residence allow planners to examine population movements.
* Information on births and deaths, especially those that do not have a system that adequately registers these vital events.
* Information on buildings, living quarters and related facilities.

**15. What kinds of data would you expect to find in the Centers for Disease Control and Prevention’s Morbidity and Mortality Weekly Report?**

The Morbidity and Mortality Weekly Report is a weekly epidemiological digest for the United States published by the Centers for Disease Control and Prevention. Often called “the voice of CDC,” the MMWR  series is the agency’s primary vehicle for scientific publication of timely, reliable, authoritative, accurate, objective, and useful public health information and recommendations.

Below are the kinds of data that can be found in the CDC Morbidity and Mortality Weekly Report:

* Reported cases of specified notifiable diseases e.g. Cancer, Cholera, Hepatitis (A, B or C) etc.
* Morbidity and mortality data by state and region of the country.
* Reports of outbreaks of disease(s)
* Data on environmental hazards
* Data on unusual cases and/or other public health problems.

**Conclusion:**

I will like to conclude this assignment by stating the 3 important concepts I learnt in this course.

1. The leading causes of death in Nigeria compared to other nations of the world. Nigeria, being the most populous country in Africa, lags behind in all health indicators. These deficiencies are manifest in our unacceptably high numbers in Infant and Maternal Mortality, poor life expectancy, high disease burden and deaths from preventable disease conditions.  
     
   Recent data according to the Centre for Disease Control and Prevention has shown the top 10 causes of death in Nigeria to be ; Diarrhea diseases, NTDs & Malaria, Neonatal Disorders, HIV/AIDS & TB, Cardiovascular Diseases, amongst others. This data shows that "infectious diseases" is the prominent causes of death.   
     
   Diarrhea (and other gastrointestinal) diseases shows the height of unhealthy (personal & community) hygiene in the region. It also reveals poor sanitation and unavailability of pure water. The inclusion of "Nutritional Deficiencies" as 10th in the leading causes of death in Nigeria speaks of the poor health education, high level of poverty, lack of awareness and nonchalance in the region.  
     
   Intensive health education and awareness Programme should be embarked upon by the government agencies. Also, investment and public health interventions should be done to curb this high mortality rate resulting from manageable infectious diseases. Finally, I recommend interventions like National Health Surveys: such as National Health and Nutrition Examination Survey, National Health Interview Survey, National Health Care Surveys, Behavioral Risk Factor Surveillance System and a host of other public health interventions as seen in the United States.
2. The U. S. Population Census: data obtained here are pivotal in the correct appropriation of national resources to education, healthcare services, infrastructural development, palliative programs and a host of other interventions. Without a correct data, there will largely be misappropriation of fund, human resources and services.  
   Irregularities of censuses in Nigeria and incorrectness of the data obtained thereof pose a serious challenge to the correct appropriation of funds, resources and services. The last census exercise was conducted in 2006 (160million) and 17 years after; the country still relies on such data for appropriation.

Although, Nigeria’s population is estimated to be about 216 million according to the UN population agency, UNFPA and according to statistical projections, if Nigeria continues in its current direction, there will be a 100 per cent increase in its population by 2050 – 400 million people. This necessitates an urgent attention and action in this regard.

1. Life expectancy: being the average number of years a person from a specific cohort/population is projected to live from a given point in time if he or she were to pass through life exposed to the sex- and age-specific death rates prevailing at that particular time (often for a specific year). Together with Health-adjusted life expectancy; the number of years in full health that an individual can expect to live given the current morbidity and mortality conditions - are another important I learnt in this course.

While the life expectancy of the United States is 79.11 years for both ages combined and the highest value reported in Hong Kong (85.29 years); the lowest values are reported in African countries. Nigeria, together with other African countries i.e. Lesotho, Chad and Central African Republic tops the list of countries with the lowest life expectancy (55.75, 55.65, 55.17 and 54.36 respectively).

The above data is worrisome and remains a concern that begs for urgent intervention. The table below shows the life expectancy of the top and bottom 5 counters

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | Country | All | Male | Female |
| 1. | Honk Kong SAR, China | 85.49 | 83.20 | 87.90 |
| 2. | Macao SAR, China | 85.40 | 82.82 | 87.95 |
| 3. | Japan | 84.45 | 81.47 | 87.57 |
| 4. | Switzerland | 83.85 | 81.90 | 85.90 |
| 5. | South Korea | 83.53 | 80.60 | 86.60 |
|  |  |  |  |  |
| 197 | South Sudan | 54.98 | 53.43 | 56.47 |
| 198 | Central Africa Republic | 53.90 | 51.65 | 56.30 |
| 199 | Lesotho | 53.06 | 50.37 | 55.93 |
| 200 | Nigeria | 52.68 | 52.28 | 53.07 |
| 201 | Chad | 52.52 | 50.84 | 54.28 |

*Extracted from "Life expectancy at birth, male". The World Bank Group. 10 May 2023. Retrieved 14 June 2023: https://data.worldbank.org/indicator/SP.DYN.LE00.IN*

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