Research Article ISSN 2835-6276

American Journal of Medical and Clinical Research & Reviews

Non-Parametric Tests On The Incidence Of Hiv/Aids Pandemic In Nigeria Between 2010-2019

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Received: 09 May 2024; Accepted: 27 April 2024; Published: 01 June 2024

Citation: Musa Chiwa Dalah. Non-Parametric Tests On The Incidence Of Hiv/Aids Pandemic In Nigeria Between 2010-2019. AJMCRR 2024; 3(6): 1-13.

ABSTRACT

Acquired Immune Deficiency Syndrome (AIDS) is the most unwelcome visitor of the 20th Century. It has been disturbing and posing a great threat to human race and world population. In Nigeria many measures were taken to reduce its spread. These includes public enlightenment and free drugs. In this study various tests were applied to compare its spread and effect in different age groups for the period indicated. Kruskal Walls and Mann-Whiteney tests are applied to determine the spread.

Finally, the testes have revealed an alarming trend of HIV/AIDS pandemic in Nigeria. The impact of this scourge is better imagined, as it is devastating mostly among the productive age class 15 – 40. If not checked, this will lead to ill – health in the society, decrease in population, frustration and early deaths.

Keywords: HIV/AIDS, Pandemic, Test.

INTRODUCTION

Acquired Immune Deficiency Syndrome (AIDS) is the most unwelcome visitor of the 20th Century. It has been disturbing and posing a great threat to human race and world population. Since the discovery of AIDS in 1981 in America, there has been tremendous rise in the number of deaths due to HIV. The prediction of doom by some local and international organization like the United Nations is turning into reality. The future is so uncertain as to what will become of developing countries like Nigeria where the scourge is gradually taking its toll on the population.

WHAT IS AIDS

AIDS is a very serious disease that affects the body's ability of defend itself against certain other diseases. It is caused by virus HIV (Human Immune Deficiency Virus). It is retrovirus which affects and takes over certain cells of the immune system. The HIV virus penetrates immunity enhancing cells. It then makes new copies of itself

and from there, goes on infecting other immunity cell. This causes the infected cell to function improperly and prematurely. This leads to weakening of the immune system thereby permitting all kinds of infection

THE ORIGIN OF AIDS

No one knows exactly where the AIDS virus came from but many scientists think it originated in Africa. One theory is that AIDS virus evolved from a similar, through harmless virus found in African Green Monkey. According to this theory, sometime in the past, one of the monkey viruses underwent a change mutating that enabled it to survive in the human body. This mutation was passed on to the virus offspring and eventually same of the mutated viruses found their way into the human body, perhaps as a result of a person being bitten by a eating a monkey (monkey brains are popularly found in Africa). Once inside the human body, the virus may have mutated further until it become the virus known today as the AIDS virus. Regardless of exactly where it started, AIDS is now a worldwide problem.

AIDS was first discovered in America in the year 1981 by Dr. Montegor of the California University. But today, AIDS has been reported in over 100 countries of the world.

CAUSES OF AIDS

Most scientists believe that AIDS is caused by a type of germ known as a virus. The virus has been given a number of different scientific names but the most commonly known among these is HIV.

HIV stands for

H - Human

I - Immunodeficiency

V - Virus

SYMPTOMS OF AIDS

It depends on which disease the person develops as the immune system break down.

Most common symptoms are:

i. Prolonged diarrhea
ii. Swollen Lymph glands in the neck, armpits or elsewhere
iii. Unexplained weight loss
iv. Persistent dry cough
v. Severe skin rashes which comes and goes
vi. Night sweat
vii. Extreme tiredness
viii. White patches inside the mouth
ix. Shortness of breath
x. Proneness to different kinds of diseases like tuberculosis, cancer, pneumonia, chest infection, Meningitis.

MODE OF SPREAD OF AIDS

i. Sexual Intercourse (homo, heterc)
ii. Prenatal transmission from mother to new born
iii. Blood transfusion
iv. Use of unsterilized equipment and contaminated needle
v. Contact with blood of infected person

HOW TO AVOID AIDS

i. Avoid casual sex
ii. Use condom if you must do it
iii. Treat sexually transmitted disease (STD) immediately
iv. Use screened blood and blood products
v. Use sterilized equipment

CURE FOR AIDS

Although a lot of claims have been made concerning discovery of cure of AIDS, there is **AS YET, NO CURE OR VACCINE FOR AIDS.** Only symptoms or diseases manifested by AIDS have

cure that can prolong the life of the HIV Patient. The most effective way to combat AIDS is prevention through enlightenment.

STATEMENT OF THE PROBLEM

An epidemic is a disease outbreak for a long period of time in community, country or in the world. HIV/AIDS is much worse than a pandemic. An epidemic is controlled after sometime. But even after many years into the pandemic, the number of people affected by HIV/AIDS continues to grow at a phenomenal rate. HIV/AIDS simply spreads like wildfire. According to the United Nations Agency in AIDS (UNAIDS) nearly 5.5 million Nigerians live with HIV and an estimate of 350 thousand Nigerians have died of AIDS with more than 2.1 million children orphaned presently.

The above information motivated me to ascertain how the pandemic is devastating the various age groups and whether the huge amount of money invested on the campaign against the pandemic by the federal, state and World Health Organization have any significant effect on the rate of spread of HIV over the years under study.

AIM AND OBJECTIVES OF THE STUDY

The aim of this project is to analyze the non-parametric tests on the incidence of HIV/AIDS pandemic between 2010-2019.

1. To find how the pandemic affect different age classes and class making the highest contribution toward the measuring response. Kruskal-wallis
2. To determine if the HIV/AIDS cases occur more in females than males. Mann-whitney.
3. To infer valid conclusion about HIV/AIDS in Nigeria and make necessary recommendation in a way to further reducing it.

THE SCOPE OF STUDY

This research study was carried out using information from internet. This study covers reported cases of HIV/AIDS by age classes and sex for the period of ten years (2010 - 2019) in Nigeria.

SIGNIFICANCE OF THE STUDY

This research work will obviously be of great help to the government.;

- The study will show the extent to which HIV/AIDS has affected different age classes in the country.
- It will also reveal whether the money invested on campaigns against the HIV/AIDS pandemic has had any significant effect.
- Lastly this work will serve as an indispensable reference material for future researches on this topic or related topics.

HYPOTHESIS

a. H0 : P1 = P2 = - - - = PK (There is no difference due to age)
b. H1 : P1 □ - - - □ PK (There is difference due to age)
c. H0 : XM = YF (Male and Female have identical distribution/ the same median)
d. H1: XM □ YF (Male and Female do not have identical distribution/ the same median)

DEFINITIONS OF TERMS

IMMUNE: This is human body protect or against infections or could be described as Antibodies (CD_4 cell and macrophage). These enables the human body to fight germs and bacteria.

DEFICIENCY: When a certain human biology requirement is below or not enough for normal body functioning, it is termed deficient. This is to

say that the immune or body power to fight against any infections on AIDS itself.

SYDROME: This means that it presents itself in many ways and is unyielding to immediate eradication.

FBA: Full blown AIDS, this is the final stage of HIV infection. The patient lasts between 6 months and 2 years or more and dies.

PWA: Persons with AIDS

HIV CARRIER: An infected person who has net begin to manifest the symptoms. He looks normal and healthy but can infect people. There is no manifestation of symptoms of AIDS for between 3 months of 14 years depending in the immune. The person is suffering. Window period: It is a period between infection with HIV virus and when the infected person tested positive to HIV. It has been discovered that infested person does not test positive immediately but after 6 months.

LITERATURE REVIEW

INRODUCTION

Nigeria with a population of 162, 176, 197 in 2010 had an infection rate of 0.02 per minute. The former Minister of Health Dr Osagie E Ehanire to the 45th National Council on Health (NCH) October 7, 2010, that by the joint Nations Program on Aids (UNAIDS) one Nigerian is infected every minute of 24 hours a day.

He also stressed the need for political support believing Dr. J.O.A. Abulaka of Mediorest specialist Hospital, Gwagwala, Abuja among other claims of cure for HIV/AIDS could only be supported after scientific verification. This he did on National Television Program Newsline, to clarify government position following controversy on the veracity of the Abalaka's claim. This can be viewed in the light of social health and economic conflicts; HIV/AIDS has unleashed on the Nigeria population. The expectation therefore from primary health care and disease control, federal ministry of health responsible for grass root health provisions was an increased awareness campaign.

This awareness did not go beyond advocating the use of condom or abstinence. But the repeated escalation of the pandemic and cry out by the public, experts and international organization woke government from its bureaucratic compliance. The former Minister of Health, Professor Debo Adeyemi at the 43rd Nigerian Council on Health Conference Bauchi, October 2007, maintained government philosophy of social justice. This amongst others include bright, full and equal opportunities for all, including HIV/AIDS patients. This might in the light of basic freedom in a democratic Nigeria oppose the theme by joint United Nations Program on HIV/AIDS (UNAIDS). It was termed "force for change, world AIDS campaign with young. However, viewed and despite controversy in government, private or individual efforts to fight the disease generally is high. But they had not enough mobilization of youth energy in the fight against HIV/AIDS. Of course, relying on data effective on health social and economic indices in the country, one is certain about lack of youth cooperation.

A state of complete physical, mental and social wellbeing marks the absence of disease or disabilities, therefore an individual is termed healthy. By estimation about 750,000 mother to child infection of HIV occur globally annually. Therefore, Nige-

rians is under serious threat from birth. The sub Sahara African rates higher at 15 - 40% with the possible means of transmission through uterus, during delivery and breast-feeding. The baby risk premature delivery, coupled with maternal included HIV diseases.

Controversial and dangerous statistics courtesy of the world AIDS campaign 2013/2014 substantiate the utmost need for the theme "face for change". These followed a joint ministerial press briefing attended by the ministers of Health, Education, Youth and Sports, Women Affairs and Social Development, also hosting information and culture. The ministerial array recognized endangered young people age 15 – 24, representing 1/3rd of 33 million ill-hearted people worldwide.

Given this scenario, there are bound to be pressure in developing countries so reported, (Uganda, Zimbabwe, Kenya and Zambia etc) implying Nigeria also. There are relevant exposition on sub-Saharan Africa reputed as way be one of the most infested region of the world. This is of course with attendant or AIDS related disease like tuberculosis amongst other aggrevatable and contiguous ones. In real, the pandemic has put pressure so much on primary health delivery program in Nigeria particularly such that infant and adult health are under series threat. Also the stigma of AIDS is divesting for the individual, group or community. Individual is perceived a homosexual, drug user and by some unfortunate circumstance a victim of infected blood transfusion or heterosexuality. Victims are wrongly regarded first class sinners of adultery and fornication therefore they are met with divine punishment.

The isolation and dejection for the individual disrupt normal life resulting in inability to assume sick and attract sympathy, care and social visits. He is certified dead already having lost hope of recovery. Controversial it was once also a buck passing between Western and African researchers that it probably originated from African green monkeys.

Economically, the overwhelming effects in the productive Nigerian age class is demoralizing despite increased effort against AIDS. Since production lies at the core of economic activities, Africans workforce reducible by 20% in the 90s is under serious threat. Thus according to Dr. Michael Merson, Director EHO Global Program (GPA), the pandemic is destroying the 13 – 45 years population age class. It talles with the Nigerian 15 – 45 years sexually age range.

The scare of insecurity arising from possible military coup threat, therefore social political instability is minor compared to the havoc by AIDS in the armed forces. A reported 10 – 15% incidence is a threat to the very military institution, indeed a serious national security risk. The work force in agriculture, new breed politicians, business men and women, students, public servants and all jobless ones, waiting to be absorbed into the labour force are also most affected.

Production accordingly is most areas will fall and international labour organization (ILO) organ of the United Nations, estimates a decline of 3 – 9% of the Nigerian Labour Force by the year 2020. The survivors will be young and less educated. Families dependent on civil service breadwinners will be destabilized. This looming danger will deal some costly blow on the Gross Domestic Product (GDP) of Nigerian at 15 – 20% according to the World Bank. Nigeria presently under an international debt of 31 billion, amounting to nearly 75%

of total GDP, is insecure economically if her work force is decreasing and she must fight HIV/AIDS with some percentage of her Domestic Productivity earnings.

Forward to these threat, the present democratic government saw the need to declare HIV/AIDS a natural problem. Nigeria amongst other African Nations accordingly got an American support during the outgoing president Bill Clintons visit in August 2000.

However, the present democratic dispensation is under threat by AIDS continually given the fact that most of this support come belatedly. Because as at 1989, standard plans so drawn and approved by World Health Organization (WHO) earlier, had not been implemented up to 10% for the reason of poor funding.

Within the framework of the HIV and Health in Nigerian Prisons project and with funding from the European Union, the United States Agency for International Development (USAID) and UNAIDS, UNODC conducted the first ever national survey on HIV and AIDS situation, available health services and drug use in Nigerian prisons as well as a similar assessment in Nigerian borstal institutions, and provided related training for health workers in prison in the areas of prevention, care and treatment.

Under the HIV and Health of People Who Use Drugs project and building on the findings of the 2019 Drug Use Survey in Nigeria, UNODC also supports the Government of Nigeria on harm reduction activities among PWIDs as well as on further enhancing access to quality health services by prisoners, including those living with HIV/AIDS.

Recent stories

Nigeria is emerging from a period of military rule that accounted for almost 28 of the 47 years since independence in 1960. The President's Emergency Plan for AIDS Relief judged that the policy environment is not fully democratized, since civil society was weak during the military era, and its role in advocacy and lobbying remains weak. The size of the population and the nation pose logistical and political challenges particularly due to the political determination of the Nigerian Government to achieve health care equity across geopolitical zones. The necessity to coordinate programs simultaneously at the federal, state and local levels introduces complexity into planning. The large private sector is largely unregulated and, more importantly, has no formal connection to the public health system where most HIV/AIDS interventions are delivered. Training and human resource development is severely limited in all sectors and will hamper program implementation at all levels. Care and support is limited due to the fact that existing staff are overstretched and most have insufficient training in key technical areas to provide complete HIV services.

RESEARCH METHODOLOGY

INTRODUCTION

THE KRUSKAL-WALLIS MULTIPLE COMPARISON TEST

This test is based on a test statistic computed from ranks determined for ponded sample observations rather than the observation themselves.

This is an alternative non-parametric procedure for one factor analysis that may be used when the assumptions of the t - test are not satisfied and also the assumption groups involved.

The Mann-whitney U test, is also known as the wilcoxon Rank sum Test, is an non-parametric statistical test use to compare two sample or group.

The Mann-whitney U test assesses whether two sample group are likely to derive from the sample population, groups are essentially asked; did these two population have the same shape with regard to their data on other words, we want evidence as to whether the group are drawn from populations with different levels of a variable of interest.

It follows that the Hypothesis in a Mann-whitney U test are:-

- The null hypothesis (Ho) is that the two population are equal.
- The alternative hypothesis (H1) is that the two population are not equal.

RESEARCH METHOD

1. Combine all observation in a single sample of size n = n1 + n2 + - - - - nk
2. Arrange in order of magnitude either from largest to smallest or from smallest to largest observations. Tied observations are assigned their mean ranks.
3. Sum the ranks assigned to each of the k samples separately.
4. Then complete the test statistic.

$$H = \frac{12}{N(n+1)} \sum_{i=1}^{k} \frac{R_i^2}{n_i} - 3(n+1)$$

Where R_i is the sum of ranks assigned to observations in the i^{th} group, for i = 1, 2, … , kn_i is the number of observations in the i^{th} group. Then the test statistic has a chi-square distribution with (k – I) degrees of freedom. Hence, the null hypothesis is rejected at the a level of significance if $H \geq X^2_{1-a, k-1}$ and is accepted otherwise $X^2_{1-a, k-1}$ is the critical chi-square value.

Let $X_1, \ldots Xn_1$ be an iid sample from X and $Y_1, \ldots Yn_2$ an iid sample from Y_1 and both samples independent of each other. The corresponding Mann-whitney U statistics is define as

$$U_1 = n_1n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

$$U_2 = n_1n_2 + \frac{n_2(n_2+1)}{2} - R_2$$

With R_1, R_2 being the sum of ranks in group 1 and 2 respectively.

THE SIGN TEST

This is used when equal samples drawn from two population either independently or as matched pairs, and the assumptions underlying the t – test are not satisfied or where we have only one population and interest is a testing that its mean has some specified value but our data do not satisfy the assumption of normality to enable us to use the t – test.

In these cases, the hypothesis to be tested usually involve the median rather than the mean. Sign test considers only the signs of the difference.

RESEACH METHOD

THE PROCEDURE TO FOLLOW IN USING SIGN TEST MATCHED PAIRS

In the case, the null hypothesis to be tested is that the difference between the two population medians is zero, in other words, that the two population have the same median. Thus, if X_1 is the observation drawn from the first population and Y_1 is the

corresponding ith observation drawn and the second population, then the null hypothesis from would be that

$P(X_i > Y_i) = P(X_i < Y_i) = 0.5$ against the alternative hypothesis that, for all i,

$P(X_i- > Y_i) > P(X_i < Y_i)$, say,

To use the sign test in testing this hypothesis we first subtract, say, $X_i - Y_i$ if X_i is greater than Y_i, the difference is assigned a plus sign (t), and if X_i is less than Y_i, the difference is assigned a minus sign (-). When M_i and F_i are equal the difference between them is assigned zero.

We then let x be the number of plus sign or minus sign, depending on which one is smaller. Then, the probability of obtaining at most X = x (small sign number) is calculated from the binominal equation.

$$P(X \leq x) = \sum_{K=0}^{x} k \, P^k Q^{n-k} \sum_{k=0}^{n} k(0.5)^n$$

Where n is effective sample size, computed as total number of plus signs and minus signs. Therefore, the null hypothesis is rejected at the a significance level if and is accepted, otherwise.

$$P(X \leq x) = \sum_{k=0}^{x} k \, (0.5)^n \leq a$$

POPULATION OF STUDY

HIV/AIDS cases in Nigeria for the period of ten years (2010 - 2019).

SOURCE OF DATA

The information used for analysis were based on secondary data. The secondary data were sourced from UNAIDS via internet.

METHODOF DATA COLLECTION

There are various methods of data collection such as

1. Observation
2. Interview
3. Questionnaires
4. Experiments
5. Abstractions

But the method of data collection used in this project writing is abstraction.

ABSTRACTION: This is divided into two groups/ headings: Registration and record. This method involves extracting data from registers or records. The method of data collection used in this project is so because information were extracted from the record.

LIMITATION OF DATA

The data used in this project writing is limited to incidence of HIV/AIDS cases in Nigeria for the period of ten years (2010 - 2019).

DATA ANALYSIS METHOD

The statistical tools and method use in this work are kruskal-Wallis and Mann-Whitney test, which can be described as non-parametric tests.

The statistical software used in this research is mini tab.

TEST OF GOODNESS OF FIT

This is used when a researcher may wish to find out whether the observed frequencies in a sample of nominal scale data are consistent with the frequencies that one would expect to obtain if the data were generated under some particular theory or hypothesis. For example, we may wish to determine

whether or not a sample of observed values of some random variable are consistent with the hypothesis that the sample was drawn from a population that is normally distributed.

PROCEDURE

In this test involving an exponential model, the null hypothesis, H_0- of interest is that he data were drawn from an exponentially distributed population, against the alternative hypothesis H_0, that the data do not conform to the postulated exponential model. To test this hypothesis, we first place the observed sample values into a set of mutually exclusive class. We then assume that the null hypothesis is true and proceed to calculate the frequencies that would be expected to fall into each class under the null hypothesis.

The test statistic $X^2 = \sum_{i=1} \frac{(O_i - E_i)^2}{E_i} \quad W \; X^2_{(k-1)}$

To test H_0, we compare the calculated X^2 with the tabulated $X^2_{(1-a,\, k-1)}$ for some specified level of significance a.

DECISION

H_0 is rejected in favour of H_i if $X^2 > X^2_{(I-a,\, k-1)}$ otherwise, H_0 is accepted.

DATA ANALYSIS AND DISSCUSSION OF FINDINGS

INTRODUTION

This section is mainly concerned with the analysis of the data collected in incidence of HIV/AIDS in Nigeria.

Table 1: Distribution of HIV Patient by gender

YEAR	FEMALE	MALE
2010	1,927,900	1,203,001
2011	2,062,936	1,167,410
2012	1,520,743	1,788,641
2013	2,104,825	1,375,521
2014	1,275,521	2,204,825
2015	2,037,614	1,431,210
2016	1,700,126	1,734,253
2017	2,400,979	1,410,026
2018	1,418,116	1,700,164
2019	2,088,436	1,012,231
TOTAL	**18,537,196**	**15,027,282**

Data source UNAIDS year 2010 – 2019

GRAPHICAL DISPLAY OF THE DATA

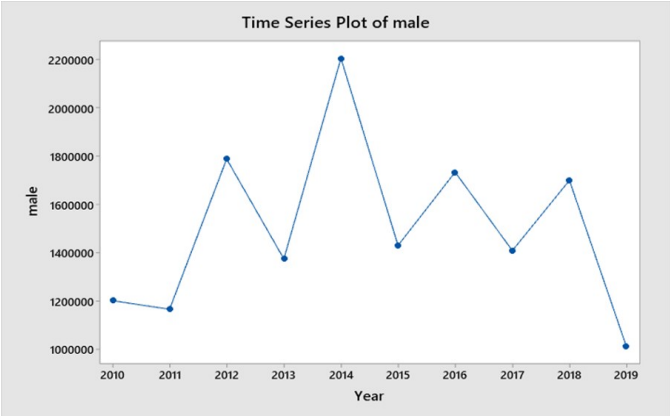

Fig.1 Time Series Plot of male

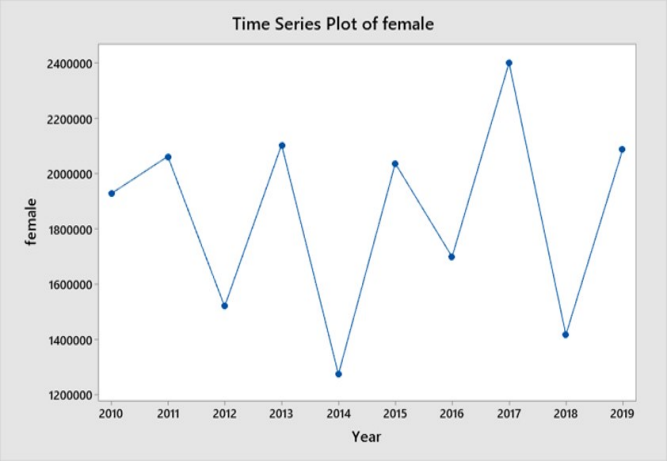

Fig:2 Time Series Plot of female

Table:2 Distribution of HIV patient by age

Year	Age	HIV
2010	0 – 4	3241
2011	0 – 4	4342
2012	0 – 4	2312
2013	0 – 4	3241
2014	0 – 4	3342
2015	0 – 4	3432
2016	0 – 4	4325
2017	0 – 4	3242
2018	0 – 4	4356
2019	0 – 4	3424
2010	5 – 9	2324
2011	5 – 9	2442
2012	5 – 9	4352
2013	5 – 9	3425
2014	5 – 9	2424
2015	5 – 9	6765
2016	5 – 9	2342
2017	5 – 9	3245
2018	5 – 9	4532
2019	5 – 9	4334
2010	10 – 14	23141
2011	10 – 14	112345
2012	10 – 14	43547
2013	10 – 14	43343
2014	10 – 14	45545
2015	10 – 14	45467
2016	10 – 14	27786
2017	10 – 14	123534
2018	10 – 14	34254
2019	10 – 14	43453
2010	15 – 19	54645
2011	15 – 19	78897
2012	15 – 19	43532
2013	15 – 19	67578
2014	15 – 19	65764
2015	15 – 19	34356
2016	15 – 19	23134
2017	15 – 19	54532
2018	15 – 19	54645
2019	15 – 19	34345
2010	20 – 24	44544
2011	20 – 24	434321
2012	20 – 24	324245
2013	20 – 24	443453
2014	20 – 24	434532
2015	20 – 24	445435
2016	20 – 24	656564
2017	20 – 24	653432
2018	20 – 24	343452
2019	20 – 24	434443
2010	25 – 29	565674
2011	25 – 29	343457
2012	25 – 29	434333
2013	25 – 29	343454
2014	25 – 29	454545
2015	25 – 29	545464
2016	25 – 29	454546
2017	25 – 29	354456
2018	25 – 29	343432
2019	25 – 29	343532
2010	30 – 34	435345
2011	30 – 34	657654
2012	30 – 34	354767
2013	30 – 34	768675
2014	30 – 34	767856
2015	30 – 34	678686
2016	30 – 34	676587
2017	30 – 34	657577
2018	30 – 34	343435
2019	30 – 34	546567
2010	35 – 39	557657
2011	35 – 39	667567
2012	35 – 39	768976
2013	35 – 39	565767
2014	35 – 39	546567
2015	35 – 39	465677
2016	35 – 39	456765
2017	35 – 39	757576
2018	35 – 39	665754
2019	35 – 39	456767
2010	40 – 44	876765
2011	40 – 44	464677
2012	40 – 44	768676
2013	40 – 44	676766
2014	40 – 44	346775
2015	40 – 44	456756
2016	40 – 44	455565
2017	40 – 44	656646
2018	40 – 44	556755
2019	40 – 44	557575
2010	45 – 49	567565
2011	45 – 49	464644
2012	45 – 49	564644
2013	45 – 49	564644
2014	45 – 49	564646
2015	45 – 49	786786
2016	45 – 49	676765
2017	45 – 49	546765
2018	45 – 49	767665
2019	45 – 49	676543

WORKSHEET 1

Kruskal-Wallis Test: HIV versus Age

Descriptive Statistics

Age	N	Median	Mean Rank	Z-Value
0 – 4	10	3383	10.4	-4.61
10 – 14	10	43500	30.0	-2.36
15 – 19	10	54589	32.0	-2.13
20 – 24	10	434488	55.7	0.60
25 – 29	10	394395	55.2	0.54
30 – 34	10	657616	76.2	2.95
35 – 39	10	561712	78.0	3.17
40 – 44	10	557165	75.4	2.86
45 – 49	10	566106	81.5	3.56
5 – 9	10	3335	10.6	-4.58
Overall	100		50.5	

Test

Null hypothesis H_0: All medians are equal

Alternative hypothesis H_1: At least one median is different

Method	DF	H-Value	P-Value
Not adjusted for ties	9	83.28	0.000
Adjusted for ties	9	83.28	0.000

WORKSHEET 2

Mann-Whitney: male, female

Method

η_1: median of male

η_2: median of female

Difference: $\eta_1 - \eta_2$

Descriptive Statistics

Sample	N	Median
male	10	1420618
female	10	1982757

Estimation for Difference

Difference	Lower Bound for Difference	Achieved Confidence
-345391	-678410	95.55%

Test

Null hypothesis H_0: $\eta_1 - \eta_2 = 0$

Alternative hypothesis H_1: $\eta_1 - \eta_2 > 0$

W-Value	P-Value
80.00	0.973

DISCUSSION OF RESULT

The Kruskal Walli's result shows that the median number of HIV cases is the smallest in the age groups 0-4 and 5-9 given by 3383 and 3335 respectively. The age groups have ranks (30.0 and 32.0) closed to the overall rank (50.5) while age groups 45-49, 35-39 and 30-34 have rank 81.5, 78.0 and 76.2 respectively which may indicates that the age groups had different rank of HIV from the others.

The Kruskal Wall's test statistics for the HIV data is 83.28 and the p-value 0.000, since the test statistics greater than the p-value so we conclude that the number of HIV cases differs from in the all age groups.

While in the Mann-Whiteney result, since the p-value is greater than the alpha-level of significance (0.973 > 0.05) so we do not reject the null hypothesis and conclude that Male and Female have identical distribution/ the same median.

Comparison between Kruskal-walhs and Mann-whitney

Kruskal-wallis	Mann-whitney
Indicates that the age group had different rank	Male and female have identical distribution

SUMMARY, CONCLUSSION AND RECOMMENDATION

SUMMARY

From the statistical analysis performed, the following findings were made:

1. That there are significant differences in the age distribution of people living with HIV/AIDS in Nigeria.
2. People in age intervals 20 – 24, 30 –34, 35 –39, and 40 _ 49 are mostly affected, ranking for , 55.7, 76.2, 78.0 and 81.5 respectively.
3. That the occurrence rate of HIV/AIDS cases is not the same for females and males, in all age groups, females' recorded higher number of cases.
4. That reported cases of HIV/AIDS in Nigeria are on a steady rise. Based on the estimated exponential growth rate of 14% per annum; the number of people living with HIV/AIDS in Nigeria is expected to rise to 10.52 million by the year 2010.
5. In 2015 2016, 2017, 2018 and 2019, the population of Nigerians that will be living with HIV/AIDS will be 5.90, 6.82, 7.88 and 9.10 million persons respectively.

CONCLUSION

The Kruskal Wallis result shows that the median number of HIV cases is the smallest in the age groups 0-4 and 5-9 given by 3383 and 3335 respectively. The age groups have ranks (30.0 and 32.0) closed to the overall rank (50.5) while age groups 45-49, 35-39 and 30-34 have rank 81.5, 78.0 and 76.2 respectively which may indicates that the age groups had different rank of HIV from the others.

The Kruskal Wall's test statistics for the HIV data is 83.28 and the p-value 0.000, since the test statistics greater than the p-value so we conclude that the number of HIV cases differs from in all age groups.

While in the Mann-Whiteney result, since the p-value is greater than the alpha-level of significance (0.973 > 0.05) so we do not reject the null hypothesis and conclude that Male and Female have identical distribution/ the same median.

RECOMMENDATION

This work has revealed an alarming trend of HIV/AIDS pandemic in Nigeria. The impact of this scourge is better imagined, as it is devastating mostly among the productive age class 15 – 40. If not checked, this will lead to ill – health in the society, decrease in population, frustration and early deaths; therefore:

- Some specific measures should be adopted such as provision of safe blood transfusion, AIDS education programme and educating youth through peer education.
- Men and women should change their sexual behaviour and make sure all blades and skin piercing instruments are sterilized.
- Parents should wake up to their responsibility towards their children by laying sound developmental foundation of social, religious and moral values in the early ages thus ensuring that no communication gap exists at any stage of their development.
- Pre-marital and pre-pregnancy HIV testing should be widely promoted and supported by regular use of condom.
- Employment opportunities should be provided for youths to discourage their indulgence in prostitution and drug abuse due to frustration.

- The federal, state and local governments must decidedly address the issue of HIV/AIDS in Nigeria more seriously.

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