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Sexually Transmitted Diseases Reported Cases in Federal Teaching Hospital IDO-Ekiti.

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ABSTRACT

Sexually transmitted diseases refers to a group of clinical infections that are spread by sexual contact and require at least one infected partner. In this paper, the reported cases of some sexually transmitted diseases was examined for consecutive ten years 2012 to 2021. The difference in the rate at which gender infected, age group that was mostly affected and percentage of each sexually transmitted disease affected gender were determined using descriptive statistics. Chi- square test of independence was used to determine if contacting disease depends on gender of individual. Incidence rate of each sexually transmitted diseases in the following years after ten years of examined reported cases of some sexually transmitted diseases were predicted. The result shows that contacting the diseases depends on the gender of the individual, female are mostly contacted Gonorrhea and Hiv more than male while male contacted Syphilis more than female. Incidence rate of each sexually transmitted diseases gradually declines each year. Conclusion was that gender of individual determined contact with sexually transmitted disease.

Keywords: Sexually transmitted, Chi- square, Incidence rate, Gender, Diseases

1.0 INTRODUCTION

Sexually transmitted disease (STD) refers to a group of clinical infections that are spread by sexual contact and require at least one infected partner. It spreads primarily through sexual activity, blood transfusions, parental transmission and the primary function of this virus is to impair the body's defense system, the lymphocyte (white blood cells), allowing any disease to assault more severely than anticipated once it enters the body. In the developed nations of the world, sexually transmitted diseases (STDs) are acknowledged as a significant public health issue.

because the incidence rates are continually increasing, it is a significant issue for both developed and underdeveloped nations worldwide. As mankind becomes more civilized, sexually transmitted illnesses are increasing at an alarming rate,Ayo *et al* (2013) in a study on social risk factors for sexually transmitted diseases among female youths in Nigeria make the case that STDs continue to be a significant public health challenge because of their health consequences, including several complications, particularly among women who disproportionately bear long-term consequences.

AIDS is included in the third group, which is also known as the third generation of sexually transmitted illnesses (Nancy and Kapil, 2012). Three groups of sexually transmitted illnesses can be distinguished: the first group, known as the first generation, includes gonorrhea, syphilis, and cancroid. Hympho granuloma venereum and granuloma ingunale are two examples of the second generation. The atypical acquired immune deficiency syndrome is the third generation (AIDS). Due to its prevalence, effect on baby and maternal health, unique repercussions, and financial cost in terms of medical expenses and lost productivity, this sexually transmitted disease has become a public health issue in most of the world's nations, including Nigeria. Pregnancy is negatively impacted, and the newborns are negatively impacted as well. This can result in miscarriages, failures in the development of the newborns, congenital defects like blindness, etc. Sexually transmitted illnesses are thought to play a role in conditions that affect women, including pelvic inflammatory disease, ectopic pregnancy, infertility, and chronic illness, with a high frequency of untreated or poorly treated cases.

1.1 Objectives

The Objective of the Study

The extent of objective of this study was determine to:

- examine the reported cases of some Sexually Transmitted Disease

- determine the gender mostly contacted sexually transmitted disease

- specify the age group that is mostly affected

- examine if contacting sexually transmitted disease depend on gender

2.0 Method

Chi-square test of independence was used to determine whether contacting disease depends on gender of individual and linear regression equation used to predict incidence rate..

$$\chi^2_{cal.} = \sum\sum \frac{(O_{ij}-E_{ij})^2}{E_{ij}}$$

Where O_{ij} = observed frequency

$\quad$ E_{ij} = Expected frequency

$\quad$ O_i = observed value

$\quad$ $E_{ij} = \frac{O_{ij}-\sum O.}{O..}$

Expected Frequency = $\frac{Row\ Total\ \times\ Column\ Total\ .}{Grand\ Total}$

To predict, we first fit a trend

Trend: $\hat{Y} = \propto + \beta t$

Where $\alpha = \bar{y} - \beta\bar{t}$

$$\beta = \frac{n\sum T_iY_i - \sum T_i\sum Y_i}{n\sum T_i^2 - (\sum T_i)^2}$$

$$\bar{y} = \frac{\sum y}{n}$$

$$\bar{t} = \frac{\sum t}{n}$$

2.1 Data Analysis

Table 1: Showing data on number of male and female contacted STD between 2012and 2021

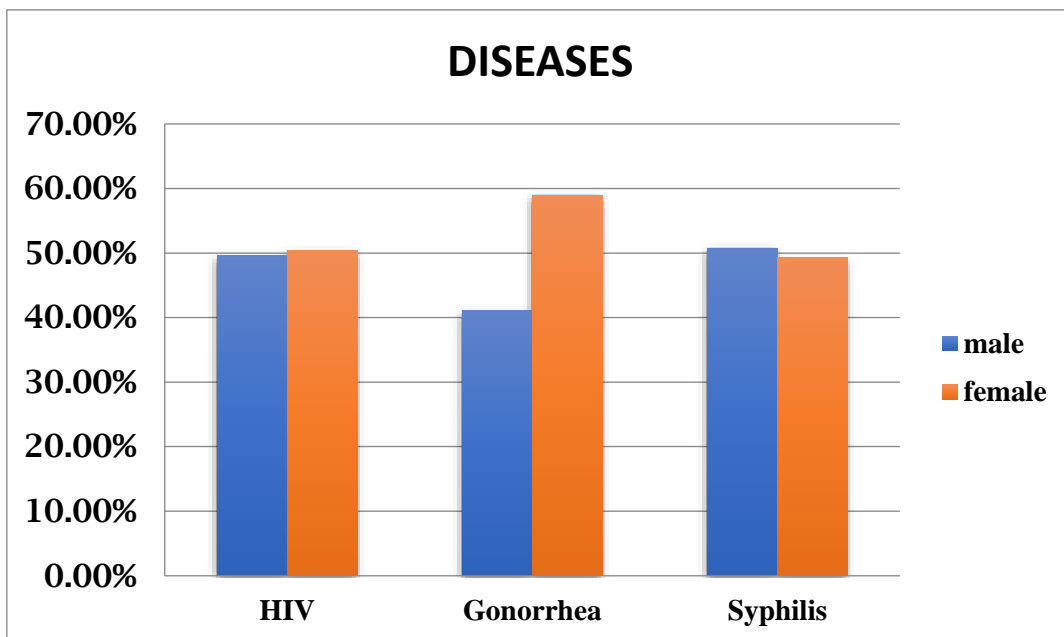| Year	2012-2013		2014-2015		2016-2017		2018-2019		2020-2021	
STDS	Male	female	Male	female	Male	female	Male	female	Male	female
Hiv	244	249	198	246	176	159	197	147	203	232
Gonorrhea	168	371	226	242	201	218	186	257	137	228
Syphilis	125	137	210	178	184	186	139	186	159	106

Figure 1: Multiple bar chart shows percentage of male and female contacted each sexually transmitted disease.

Table 2: Percentage of Reported Cases of Selected STD by Age

Age Group	Frequency	Percentage (%)
0-9	298	5.06
10-19	669	11.35
20-29	1897	32.18
30-39	1860	31.55
40-49	685	11.62
50-59	386	6.55
60 above	100	1.7

H_0: The disease is independent of individual gender

H_1: The disease depends on individual gender

Decision rule**:** Reject H_0 if p–value $\leq$ α-value otherwise, do not reject H_0

Table 3: Result of Chi-Square Test of Independent

Year	Pearson Chi-square	P-value	Decision
2012-2013	40.8317	0.001 < α =0.05	H_0 rejected
2014-2015	7.5923	0.022 < α =0.05	H_0 rejected
2016-2017	1.5597	0.458 > α =0.05	No reason to reject H_0
2018-2019	21.3652	0.0001 < α =0.05	H_0 rejected
2020-2021	31.1292	0.0001 < α =0.05	H_0 rejected

Table 4: Showing Incident Rate of Sexually Transmitted Disease

HIV   GONORRHEA   SYPHILIS

Year	t	y	Trend	Year	t	y	Trend	Year	t	y	Trend
2012	1	211	224.3819	2012	1	264	265.5636	2012	1	172	170.6
2013	2	282	220.097	2013	2	275	256.1939	2013	2	90	168.4666
2014	3	199	215.8122	2014	3	211	246.8242	2014	3	200	166.3333
2015	4	245	211.5273	2015	4	257	237.4545	2015	4	188	164.2
2016	5	162	207.2425	2016	5	232	228.0848	2016	5	175	162.0667
2017	6	173	202.9576	2017	6	187	218.7151	2017	6	195	159.9333
2018	7	196	198.6728	2018	7	258	209.3454	2018	7	164	157.8
2019	8	148	194.3879	2019	8	185	199.9757	2019	8	161	155.6667
2020	9	179	190.1031	2020	9	179	190.606	2020	9	156	153.5333
2021	10	256	185.8182	2021	10	186	181.2363	2021	10	109	151.4

Table 5: Showing Prediction for the Next Three Consecutive Years

Year	t	Hiv $\hat{Y} = 228.6667 - 4.28485t$	Gonorrhea $\hat{Y} = 274.9333 - 9.3697t$	Syphilis $\hat{Y} = 172.7333 - 2.13333t$
2022	11	181.5334	171.8666	149.2667

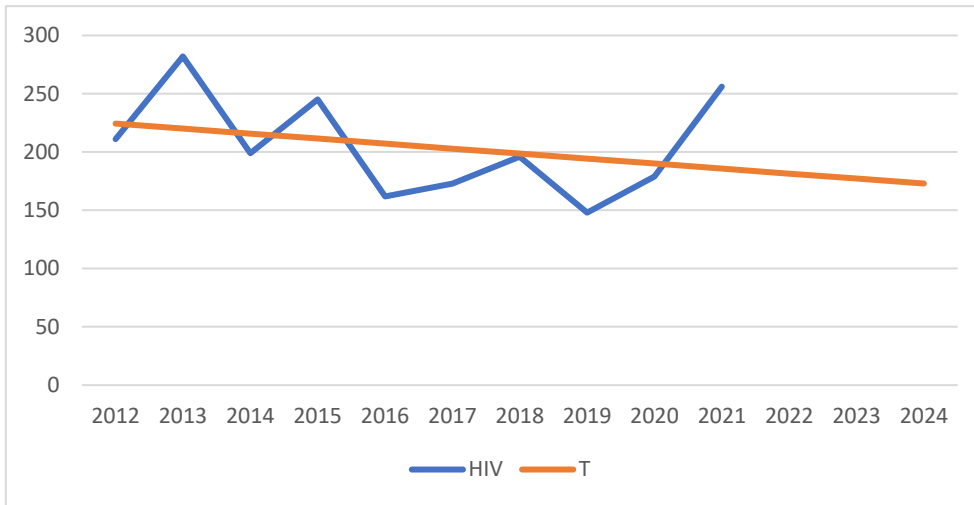| 2023	12	177.2485	162.4969	147.1333
2024	13	172.9637	153.1272	145

Figure 2: Trend and Prediction of HIV between Year 2012 and 2024

Finding**s:** The result above shows that the incidence rate of HIV is gradually decreasing in year 2022, 2023 and 2024
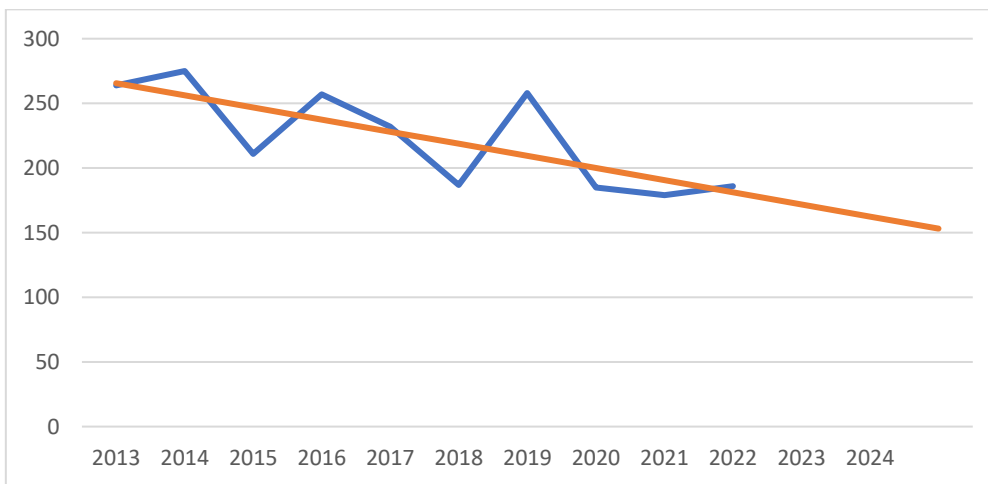

Figure 3: Trend and Prediction of Gonorrhea between Year 2012 and 2024

Findings: The result above shows that the incidence rate of Gonorrhea is gradually reducing in year 2022, 2023 and 2024.
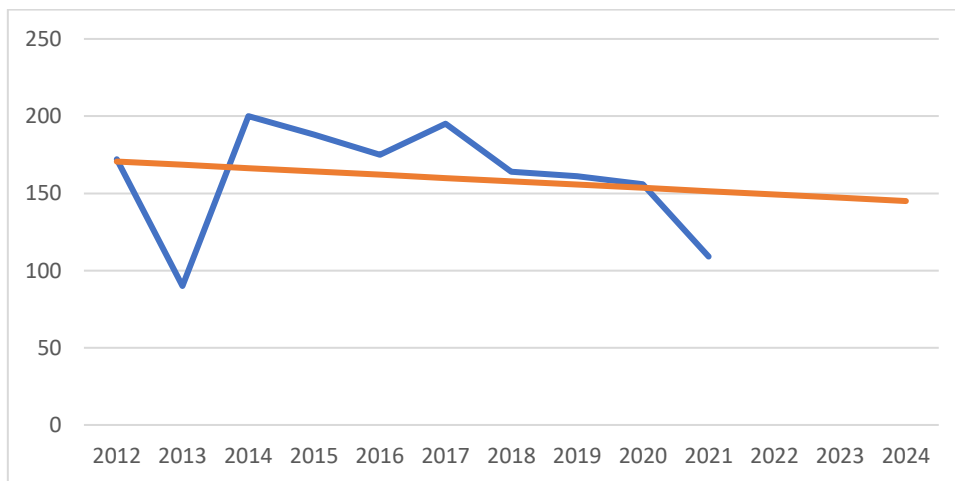

Figure 4: Trend and prediction of Syphilis between year 2012 and 2024.

Findings: The result above shows that the incidence rate of Syphilis is gradually reducing in year 2022, 2023 and 2024

3.0 Discussion and Result

From the above result it was discovered from table 2 that age group 20-29 has the highest percentage (32.18%) and the age group 60 above has the lowest percentage (1.7%). Females were affected by sexually transmitted disease than males, From table above the result of chi-square test showed that p-value is less than level of significance at 5% and null hypothesis is rejected in all the group year except 2016-2017 where there is no reason to reject null hypothesis based on p-value which greater than level of significance at 5%. Also , from table 5 the incident rate is reducing year by year from year 2022 to 2024.

4.0 Conclusion

It is concluded that age group 20-29 and females are mostly contacted sexually transmitted disease. Also, contacting sexually transmitted disease depend on gender.

References

Ayo, A.S., Musibau, T., Adeniyi, F.F. and Odunayo, A.J. (2013). Statistical modeling of social risk factor for sexually transmitted diseases among female youths in Nigeria. Department of epidemiology, medical statistics and environmental health, college of medicine, University of Ibadan.

Nancy, M. and Kapil, G. (2012). Sexually transmitted diseases: An overview. Department of Parasitology, Postgraduate Institute of Medical Education and Research, Chandigarh India

Nzoputam, C., Adam, V.Y., and Nzoputam, O. (2022). Knowledge, Prevalence and Factors Associated with Sexually Transmitted Diseases among Female Students of a Federal University in Southern Nigeria. Venereology 1, 81–97. https:// doi.org/10.3390/venereology10100

Assefa, A., Sema, M., and Bezabih, M. (2021). Assessment of Knowledge, Attitude and Preventive Practice towards Sexually Transmitted Infection among Tewoderos Preparatory School Students of Debere Tabor Town, North Central Ethiopia. Health Science Journal. Vol. 15 No. 11: 902