SHORT REPORT

Prevalence and treatment of HIV/AIDS in Pakistani population: A retrospective study

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Abstract

HIV/AIDS epidemic poses an emerging threat around the world. An estimated 0.1% of people aged 15 to 49 years have been infected with HIV/AIDS in Pakistan during the last few years. This research study aims to analyse the prevalence and treatment/management of HIV/AIDS among the Pakistani population aged 15 to 45 years from 1990 to 2020 and this research data was collected during the year 2021. The analysis was done by using E-views software. Descriptive statistical analysis, correlation coefficient, unit root analysis, and linear regression analysis were used. Results indicated that there is low awareness regarding AIDS in the population and there is a significant link between prevalence and population increase, i.e. with the increase in population the prevalence of AIDS also increases. Findings are discussed in terms of implications for prevention and education of HIV/AIDS in Pakistan's population.

Keywords: Prevalence (P), Therapy (T), Human Immunodeficiency Virus (HIV).

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Introduction

Acquired immune deficiency syndrome (AIDS) is a chronic, life-threatening condition. It weakens the body's immune system, so the body is no longer protected against fungal, viral, and bacterial infections.[1] The immune system is unable to combat infections and diseases in the absence of adequate therapy with a combination of antiretroviral (ARV) medications.[2]

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Even a normal infection presents a threat to the body. AIDS is caused by human immunodeficiency virus (HIV). HIV spreads through body secretions like blood, semen, and other organic fluids. HIV transmission is more prevalent among homosexuals than heterosexuals. AIDS is becoming a prevailing illness of the human immunodeficiency virus (HIV), and the resultant death toll has been increasing significantly since 1987.[3]

There has been a disturbing rise in the number of HIV/AIDS infections, with the reported number in Pakistan increasing from 8,360 to 45,990 cases from 2005 to 2015, representing the highest average global infection growth rate of 17.6 percent in history.[4]

The University of Washington undertook a research study to show that the mortality caused in Pakistan by AIDS/HIV climbed from 350 in 2005 to an incredible 1,480 in 2015. This indicates an average annual raise of 14.2 percent. In addition, the morbidity toll is also rising.[5]

The prevalence of STDs is unsettlingly high among Pakistanis, particularly men.[6] The prevalence of STDs is anticipated to be 8.5% in Karachi, 5.3% in Lahore, 4.0% in Faisalabad, 4.3% in Quetta, 2.0% in Rawalpindi, and 2% in Peshawar. Research conducted by the National AIDS Control Programme shows a 60% infection rate among trans-genders and 36% among men.[7] The highest at-risk groups for transmissibility of HIV/AIDS infection in Pakistan includes transsexuals, males, and women with a rate of 5.2%, 1.6%, and 0.6% respectively.[8] It showed that new models and modifications in injection, in particular, have been a critical factor contributing to a rapid increase in HIV amongst drug users.[9]

According to the Pakistan Demographic and Health Survey, there are 490 and 84 cases of AIDS in Punjab, 395 and 43 cases of AIDS in KP, and 349 and 53 cases of AIDS in all four provinces combined.[5] In Pakistan, numerous variables make it exceedingly difficult to treat HIV/AIDS infections, like poverty, significant power imbalances between men and women, migration from labour to the workplace; high level of medical use, low contraceptive prevalence, low level of sensitivity of health workers, and the use of sterile-free syringes.[10]

The primary objective of this study is to determine

whether prevalence and population are related to and reliant on one another. This study analysed previously collected data to determine the proportion of HIV patients among men and women in the country. This data may be utilised to analyse the prevalence of HIV/AIDS in Pakistan and to inform the susceptible patients about this infectious disease and its treatment.

Materials and Methods

The following section highlights the adopted methodology for the current research paper; also given are the research design, strategies, participation, and analytical procedures:

The Study Design: In the present study a cross-sectional approach was used. The current study involves a time series data and a cross-sectional methodology. The present investigation produced data that was statistically analysed. In panel data, the brief analysis of data provides a difference between time series and cross-sectional data.

Sampling Design: The study is based on time series data downloaded from the WHO world development indicators data bank. The sample was collected in numerical form, and it is represented in the form of a table and list. The sampling means data that was collected from the software. The data was collected through world development indicators (World Bank)[11] and measures the impact of prevalence and management of HIV/AIDs among the Pakistani population. In this study, the prevalence and management of HIV/AIDS is an independent variable, and the population is the dependent variable.

Participants and Data collection: The cross-sectional data was gathered from the period between January 1990- December 2020. HIV-positive patients of both genders aged between 15 and 45 years within Pakistan were included. Patients who had signs and symptoms of HIV but are not positive were excluded from the study; at the same time, patients below the age of 15, more than 45 years of age, and out of Pakistan were also considered ineligible for analysis.

Analytical Method: For data analysis, the regression data panel was used which is a classical test by using E-views software. The present research is a causal study to assess the relationship between the variables. It uses descriptive statistical analysis, correlation coefficient, regression analysis, and one-way ANOVA test, and also investigates reliability and validity test analysis.

Results

Table-1 represents a descriptive statistical analysis of the prevalence of HIV/AIDS with the help of mean, median, standard deviation, the value of maximum, minimum, and also probability value. The total observation used for analysis is six, the mean value of the prevalence of HIV/AIDS is 0.1000, and its minimum and maximum

Table-1: Dependent Variable: Prevalence of HIV? AIDS.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.100000	7.87E-13	1.27E+11	0.0000
PO	7.78E-14	1.53E-14	5.099019	0.0000
Mean dependent var	0.100000	S.D. dependent var	0.000000	
S.E. of regression	9.22E-15	Sum squared resid	2.21E-27	
Durbin-Watson stat	0.024192			

Method: Least Squares
Sample (adjusted): 1990 2017
Included observations: 28 after adjustments

Table-2: Descriptive statistics.

Statistical Parameters	Prevalence of HIV/AIDS	Population Male	Population Female	Population Total
Mean	0.100000	9.600000	24.61667	92626706
Median	0.100000	9.150000	24.15000	92812089
Maximum	0.100000	14.20000	30.70000	1.03E+08
Minimum	0.100000	6.400000	20.00000	81301352
Std. Dev.	0.000000	2.869843	3.894312	7923950.
Skewness	NA	0.527515	0.414955	-0.118847
Kurtosis	NA	2.096544	2.033462	1.861043
Jarque-Bera	NA	0.482330	0.405737	0.338430
Probability	NA	0.785712	0.816386	0.844327
Sum	0.600000	57.60000	147.7000	5.56E+08
Sum Sq. Dev.	0.000000	41.18000	75.82833	3.14E+14

Table-3: Prevalence of HIV/AIDS in Population.

Location	Prevalence of HIV/AIDS	Population
Frontal	139	32.40
Mean	0.100000	51.59312
Median	0.100000	51.58845
Maximum	0.100000	51.85494
Minimum	0.100000	51.46142
Std. Dev.	0.000000	0.116302
Skewness	NA	0.645850
Kurtosis	NA	2.430055
Jarque-Bera	NA	2.325547
Probability	NA	0.312618
Sum	2.800000	1444.607
Sum Sq. Dev.	0.000000	0.365205
Observations	28	28

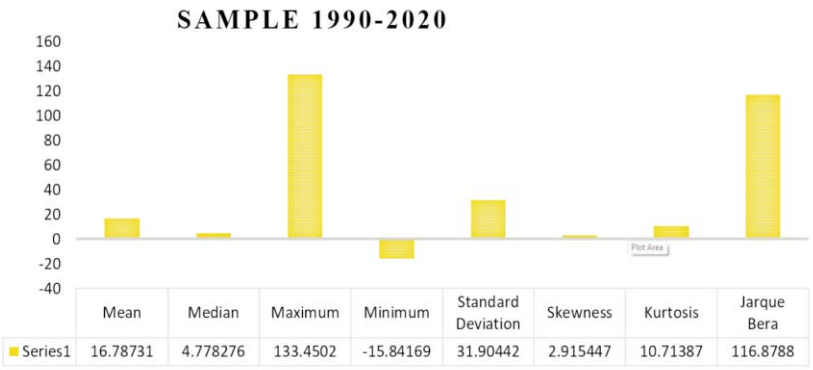

Figure-1: Histogram showing prevalence of HIV/AIDS in Pakistan population using different statistical parameter.s

values are 0.10 and 0.10, respectively. The value of the mean population in males is 9.60 whereas in females it is 24.61 and the total population value of the mean is 9,262. The results show that if the population increases, then in this population 800 or maximum people are affected with HIV/AIDS. The probability value is 0.78, 0.81, and 0.84 which shows an insignificant effect of the prevalence of HIV/AIDS in Pakistan.

Table-2 and Table-3 presents the values of mean, median, and standard deviation. The statistical tools skewness, jarque-bera were also applied which is also shown in Figure 1. The mean value of prevalence is 0.100 and the population's mean value is 51.59 which shows that if the population is 51% then 100 people are affected by HIV/AIDS. The total probability value is 0.31 which means 31% significance level.

Regression Analysis: Results indicate that regression analysis is between a dependent variable and the independent variable. The dependent variable is the prevalence of HIV/AIDS and the population is the independent variable. The results show the value of the coefficient, standard error, the level of t-statistic, and probability. The coefficient value of the population is 7.78 and its standard deviation value is 1.53, the value of the t-statistic is 5.099 and the probability value is 0.001 showing a 100% significance level. This shows there is a direct correlation between prevalence of HIV/AIDS and the increase in population in Pakistan.

Conclusion

This research study is based on an analysis of secondary data to measure the prevalence and management of HIV and AIDS in Pakistan. The study concluded that there are positive and significant relationships between the prevalence and management of HIV and AIDS among the population in Pakistan. All the information in this study shows a positive impact of prevalence frequency on HIV/AIDS with the population growth rate, little awareness about family planning, use of contraceptives, and preventive measures, especially in less privileged areas. However, the data for HIV/AIDS risk factors for particular groups in the country has not been included. The study is limited to a Pakistan-based population and specifically those patients were included who were HIV positive. Children and elderly patients were not covered in this study.

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