Khalij-Libya Journal
of Dental and Medical Research
http://journals.khalijedental.com.ly/index.php/ojs/index eISSN:2708-888X

Original Article

Prevalence of HIV Infection among Libyan Population in Tripoli-Libya

Najla Elyounsi[1], Soomia Al-Haddad[2*], Abdussalam Ashour[3], Ahmed Atia[3]

[1]*Department of Medical Laboratory Sciences, Faculty of Medical Technology, the University of Tripoli, Libya.*
[2]*Department of Public Health, Faculty of Medical Technology, the University of Tripoli, Libya.*
[3]*Department of Anesthesia and Intensive Care, Faculty of Medical Technology, the University of Tripoli, Libya.*
Corresponding Email. soomiaalhaddad@gmail.com

ABSTRACT

Objective. *The study was conducted at the National Center for Diseases Control (NCDC), Tripoli Libya, aimed to assess the prevalence of human immune-deficiency viral infection (HIV).* ***Methods***. *Data on HIV patients from the records of the NCDC from January 2019 to December 2021 were included. Enzyme-Linked Immunosorbent Essay were used to the viral detection. Data were analyzed using SPSS version 22.* ***Results***. *Out of the total 3396 records, 624(18.37%) were tested HIV positive; of which 498(14.66%) were male and 3.71% were females. The majority of positive samples were linked to the ages of ≥ 40 years.* ***Conclusion***. *HIV testing is important step for prevention, early diagnosis, and control prevalence of HIV. Educational and environmental interventions aimed to minimize the risk of HIV is important to uphold HIV control in country.*

Keywords: HIV Testing, Sex, Infection, AIDS.

Citation: Elyounsi N, Al-Haddad S, Ashour A, Atia A. Prevalence of HIV Infection among Libyan Population in Tripoli-Libya. Khalij-Libya J Dent Med Res. 2023;7(2):115–119.
https://doi.org/10.47705/kjdmr.237209
Received: 22/09/2023; **accepted**: 17/10/2023; **published**: 21/10/23

INTRODUCTION

More than forty years have passed since the first reports on acquired immunodeficiency syndrome (AIDS); nevertheless, human immunodeficiency virus (HIV) infection continues to pose a major global health issue [1]. Since recognized HIV as a global public health problem in 1981, was causing more than 33 million deaths. At the end of 2019, an estimated 38 million people were living with HIV worldwide [2,3]. Which, an estimated 0.7% of the world's population is newly infected with HIV, with increased prevalence by ratio of 3.7% in South Africa Region against the lowest prevalence by ratio of <0.1% in Middle East Region as WHO reporting [4,5]. Another study estimated of 500,000 people are living with HIV/AIDS in North Africa, and the number of new infections is rising [6,7].

The United Nations Programs on HIV/AIDS (UNAIDS) is starting to achieving to 95–95-95 targets by to 2030 [8]. After the remarkable achieving that made in 90–90-90 targets, which target to ensure that 90% of the people living with HIV (PLHIV) should be

diagnosed and know their status, 90% of HIV-positive should be initiated on antiretroviral therapy (ART), and 90% of patients with ART- therapy should be viral load suppressed by 2020 [9].

The most frequent routes of HIV transmission through the use of blood and blood products, sexual contact, and transmission from an infected mother to her child during pregnancy, childbirth, or lactation [10,11]. Accordingly, various economic, demographics, and political factors contribute to extra extend HIV in this region [12]. The epidemic spread is associated with segments society of high-risk, such as prisoners and drug users IDUs [13,14]. Moreover, the political instability can lead to increased transmission and spread of infectious diseases, including HIV-infection [15]. About 40% of new cases of HIV infection, is occurring among the young people worldwide [16]. The current study was conducted at the National Center for Diseases Control (NCDC), Tripoli Libya, aimed to assess the prevalence of human immune-deficiency viral infection (HIV).

METHODS

Samples collection and blood screening

About 3396 of blood specimens were collected by polypropylene test tubes. Serum was separated by centrifuge for 5 min at 1500 rpm and were maintained at 2-8 C° prior analyzing test. All samples tested as per the blood banks and kits manufacturers' recommendations to detection the antibodies to human immunodeficiency virus (HIV). Enzyme-Linked Immunosorbent Essay was used for HIV detection by using commercial DIA (PRO diagnostic Bioprobes ELISA kit (Italy) following by manufacturer's instruction)" [17].

Statistical analysis

Statistical Package for Social Sciences (SPSS) software Version 21 was used to analyze the data. Descriptive statistics was used as number and percentages.

Ethical approval

The study was approved by the ethical review committee of the National Center for Diseases Control, Tripoli, Libya. Confidentiality of patient's data was ensured.

RESULTS

Assessment of prevalence rate of HIV was carried out using Enzyme-Linked Immunosorbent Essay for HIV Detection on 3396 samples collected over a three-year period, to produce the results for this study as shown in table (1). About 2772 samples were HIV-free by ratio (81.63%), and 624 were HIV-positive by ratio (18.37%).

Table 1. Prevalence rate of infected with AIDS in Libyan Individuals in Tripoli.

The number of patients infected and non – infected with AIDS				
Human Immunodeficiency Virus	**Year of analysis**			**Total**
	2019	**2020**	**2021**	
Non-Infected	1130	1150	492	2772
Infected	256	236	132	624
Total	1386	1386	624	3396

Estimated of prevalence rate of HIV was on the basis of the frequency of people with HIV between individuals attended to National Center for Diseases Control- Tripoli Libya. The prevalence of HIV was 18.38% of those whose include them the examination (Fig.1).

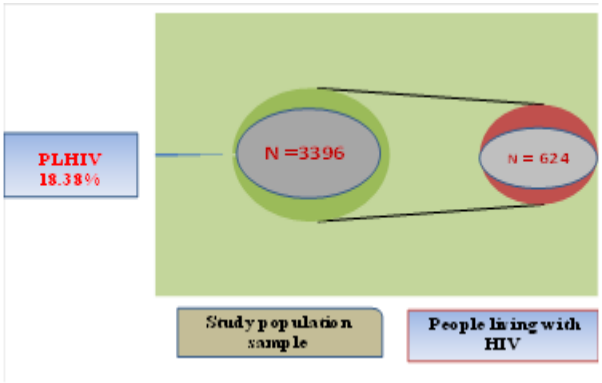

Figure 1. The percentage (%) for HIV frequency among the studied patients.

Figure 2 depicts the trajectory of newly diagnosed HIV cases and living cases, which clearly rises in 2019 while showing a decline in instances from 2020 to 2021, although the sample size is equal between the years 2019 and 2020 (Fig.2).

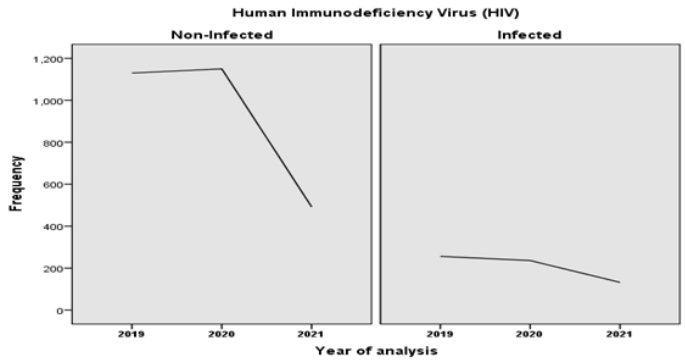

Figure 2. The range distribution of infection with AIDS during a three-year period in this study.

Studied groups including 2483 (73%) males and 913 (27%) females. About 498 of studied sample (18.37%) were males with HIV-positive, and 126 of them (14.66%) were females with HIV-positive as shown in Table (2).

The data also showed that the range of ages was from 7-99 years, where the higher frequency of infection with AIDS was found to be higher significantly in ages of ≥ 40 years as illustrated in table (3).

Table 2. Assessment of prevalence rate of AIDS infected between males and females in Libyan Individuals on Tripoli

Prevalence rate of AIDS		F	M	Total
2019	Non-Infected	333	797	1130
	Infected	45	211	256
	Total	378	1008	1386
2020	Non-Infected	338	812	1150
	Infected	42	194	236
	Total	380	1006	1386
2021	Non-Infected	116	376	492
	Infected	39	93	132
	Total	155	469	624
Total	Non-Infected	787	1985	2772
	Infected	126	498	624
	Total	**913**	**2483**	**3396**

Table 3. Assessment of prevalence rate of AIDS infected between age groups in Libyan Individuals on Tripoli

Years of analysis	Age of Individuals	Non-Infected		Infected	
		Statistic	Std. Error	Statistic	Std. Error
2019	Mean	42.21	.682	42.21	.682
	Median	43.00	43.00	43.00	.00
	STD	13.464	.000	10.906	.000
	Minimum	8	.00	3	.00
	Maximum	97	.00	80	.00
	Range	89	.00	77	.00
Total	1386	Valid (1130)		Valid (256)	
2020	Mean	44.73	.399	42.94	.752
	Median	44.00	.00	44.00	.00
	STD	13.530	.000	11.548	.000
	Minimum	8	.00	2	.00
	Maximum	97	.00	91	.00
	Range	89	.00	89	.00
Total	1386	Valid (1150)		Valid (236)	
2021	Mean	43.83	.00	41.44	.00
	Median	40.50	.00	40.48	.00
	STD	13.584	.000	13.636	.000
	Minimum	7	.00	13	.00
	Maximum	86	.00	86	.00
	Range	79	.00	73	.00
Total	**624**	**Valid (492)**		**Valid (132)**	

DISCUSSION

The prevalence of HIV on the basis of the frequency of people with HIV of study population sample was (18.37%). Considers a relatively high number of injuries, might be due to the great openness to the movement of travel for several purposes, and gatherings of societal groups with different social and religious cultures of immigrants in the labor market, all of these elements may cause an increased risk of HIV spread and infection among young people in the Libyan population.

The prevalence of HIV has been documented in different countries worldwide. The current study was carried out to estimate HIV infection in Tripoli_ Libya over three years from 2019-2021, the number of cases in 2019 was 256 with prevalence ratio (18.47%) in a sample study, while the number of new HIV infections fell somewhat in 2020 and 2021 to 236 (17.03%), and 132 (21.15%), that confirmed by previously described results [18,19]. According to this study, a decline in new HIV infections over time may be attributable to increased HIV detection through increased HIV testing and counseling services, more public knowledge of the disease, and increased access to diagnosis.

Studied groups including 2483 (73%) males and 913 (27%) females. About 498 of samples of males were HIV-positive by ratio (14.66%) and 126 (3.71%) of females were HIV-positive. These findings are in line with an earlier study in Iraq [20]. This, might be due to little number of females were attended to diagnostic in sample volume. Additionally, new infections among adult females globally decreased by (17%) in reports UNAIDS and WHO, this was consistent with the result in this study with prevalence of (3.71%) in females, compared to prevalence of (14.67%) infections among adult males.

The current data also indicated that the incidence of AIDS is significantly higher at ages ≥ 40 years, which illustrated in 2019 the average age of the cases was 43.00, with a standard deviation from the mean (10.906= 11), meaning that ages of the infected patients ranged between 32 and 54 years. In 2020, the average age of the cases was 44.00, with a standard deviation from the mean (11,548=12), meaning that ages of the injured patients ranged between 32 and 56 years. Wiliest in 2021, the average age of the cases was (40.48=41), with a standard deviation from the average (13,636=14), meaning that ages of the infected patients ranged between 27 and 55 years.

The cases {aged 15 or older} made up the significant majority of cases in sample study of both genders. This result agreed with UNAIDS and WHO reports [21], which estimates that 38 million people living with HIV worldwide, of them 36.2 million (95%) were adults {more than aged 15}, and the remaining (5%) were children {aged 15 or younger}. Our results reported that adults (>20 years old) made up the majority of HIV infections by (86.2%), and this agree with studies conducted in Oman and Qatar [22,23].

CONCLUSION

Data in this study provides preliminary information about the prevalence of HIV among Libyan patients. Continued surveillance of the HIV disease burden and efforts to assess and respond to factors associated with undiagnosed HIV infection are critical components of an effective response to the HIV epidemic in Libya.

Acknowledgements

We express my sincere gratitude and appreciation to the National Center for Diseases Control - Tripoli Libya. To assistance and support them for conducting this work.

Conflict of interest

Nil

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