

Survey of epidemiological data in relation to STIs in adolescents

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To cite this article:

Melo, N.F.B.; Andrade, S.C.; França, M.M.; Oliveira, L.V.L.S.; Lima, L.B.; Feitosa, E.D.G.; Silva, E.C.F.; Tavares, B.T.L.; Lima, R.A.F.; Costa, A.J.N.; Silva, A.C.M.; Souza, A.C.A. *Survey of epidemiological data in relation to STIs in adolescents. International Journal of Sciences*. Vol. 3, No. 2, 2022, pp.19-23. ISSN 2763-5392.

Received: 02 21, 2022; **Accepted:** 02 24, 2022; **Published:** 03 20, 2022

Abstract: Sexually Transmitted Infections (STIs) are caused by viruses, bacteria or other microorganisms, transmitted most often by sexual intercourse, without the use of condoms, and can transmit from mother to child and through syringes, needles or other sharp materials shared. Six infections are on the rise among young Brazilians, which are: HIV/AIDS, Hepatitis B and C, Syphilis, HPV, Gonorrhea and Genital Herpes. However, only HIV/AIDS, Hepatitis B and C and Syphilis will be analyzed, because they are diseases of compulsory notification and present their data in SINAN. To analyze the survey of epidemiological data in case of STIs in adolescents. Study of secondary databases, quantitative, descriptive with a focus on the young population, adolescents between 10 and 19 years old. The results show that the most affected sex is male in all STIs analyzed. Hepatitis B

decreased by approximately 17.57% in 2019 compared to 2014. Hepatitis C in 2018 had n=1574 deaths, more than three times the total number of deaths by the other Hepatitis. N=70,756 pregnant adolescents who had syphilis between 2015 and June 2020 were reported. There was also a decrease in AIDS cases from 2015-2019, where n=37,302 cases were reported in 2019. With the high number of cases during the year of STIs, special care is needed to create primary and secondary prevention strategies, which will contribute to a decrease in these numbers.

Keywords: Epidemiological Data. Adolescence. Sexually transmitted infections

1. Introduction

Adolescence is a phase of great changes for humans, leaving childhood to adulthood with major transformations physiologically, anatomically, psychologically and socially. The World Health Organization (WHO) defines adolescence as the period of life that begins at the age of 10 and ends at 19 years of age (CARNEIRO *et al.*, 2015).

Changes in adolescence require attention and care from family members and professionals, because it is a period of discovery and search for identity, even starting the sexual life. Nowadays, young people start their sexual life earlier and earlier with behaviors and practices that leave them vulnerable to acquire some type of Sexually Transmitted Infection (STIs) and even an unwanted pregnancy (CAMARGO; FERRARI, 2008).

STIs are caused by microorganisms, transmitted mainly by sexual act (vaginal, anal and oral) when condoms are not used and with a person who is infected. It can also happen by vertical transmission from mother to child through childbirth or breastfeeding, as well as by the use of syringes, needles or compartmentalization of some other cutting hole (CARVALHO; WEDGE; MIRANDA, 2018).

It is important that sexual life be discussed, that professionals can pray about the primary preventions, which would be condoms; and secondary orientations, diagnoses and treatments. Sexual practice often occurs early, because it is a phase of great anxiety, usually, which can end up in the goals of life. Six STIs are on the rise among young Brazilians, which are: HIV/AIDS, Hepatitis B and C, Syphilis, HPV, Gonorrhea and Genital Herpes (CARNEIRO, 2017).

Young people seek partners without commitment, casual and that happens by simple physical attraction, allowing huge diversification in sexual partners and maior frequency in performing sexual practice. Therefore, it increases the possibility of unprotected sex, that is, without being healthy, also raising the possibility of contamination (CANO *et al.*, 2000).

In view of the above, it was necessary to carry out this research, aiming to present the survey of epidemiological data against STIs in adolescents.

2. Methodology

This is an epidemiological, descriptive study, whose data were collected in the SciELO, PubMed database, and the Notifiable Diseases Information System (SINAN), provided by DATASUS/Ministry of Health; data from the United Nations Joint Program ACCOUNT FOR HIV/AIDS

(UNAIDS) statistics on HIV and AIDS in global data were also used, available in UNAIDS reports as well as the latest information from the Ministry of Health. The systems provide information that will help in an objective analysis for decision making in the development of health action programs through evidence.

This article was prepared from a literature review, with data from Brazilian adolescents as the target population for study, which according to the World Health Organization (WHO), is the population that is between 10-19 years of age. Focusing on the six most present STIs among young people, which are: HIV/AIDS, Hepatitis B and C, Syphilis, HPV, Genital Herpes and Gonorrhea, but only HIV/AIDS, Hepatitis B and C and Syphilis will be analyzed, because they are diseases of compulsory notification and present the data in SINAN. The data sought and studied with analysis in such variables: gender, year, age group and schooling.

Following were collected statistical data gathered from different sources, some data collected for analysis and formation of graphs and tables, for presentation of evidence that will stimulate the elaboration of actions that can decrease the number of adolescents infected and even a greater awareness and care of these young people.

3. Results and Discussion

The aim of this study was to present and discuss the findings of the literature. Analyzing secondary data from cases of hepatitis B and C, syphilis and AIDS, an impressive number were observed in national infection data in recent years. Figure 1 shows that n=13,966 cases of hepatitis B were reported in 2019, including n=7,938 in men and n=6,028 in women; a decrease of about 17.57% compared to 2014, which had the highest rate.

Hepatitis C has the highest number of other hepatitis-related deaths and, as seen in Table 3, 1,574 deaths were reported in 2018, more than three times the total number of other hepatitis deaths. Figure 2 shows that n=22,731 cases of hepatitis C were reported in 2019, including n=12,735 in men and n=9,996 in women.

Table 3 shows that the rate of deaths from hepatitis in the years 2013 to 2018 was significantly reduced. Data show that in 2013 there were a total of n=2,542 deaths from Hepatitis C, where only Hepatitis C has the number of n=2,013 reported deaths. Five years later, in 2018, there was a reduction of n=515 deaths compared to 2013, with the number of n=2,027 deaths reported.

Table 4 analyzes the cases of pregnant women with syphilis according to age group and year of diagnosis and it

is observed that n=70,756 adolescent pregnant women who had syphilis between 2015-2020, data researched until June 2020, being n=3,195 cases of 10-14 years and n=67,561 cases of 15-19 years. There was a decrease of n=1,142 cases in these adolescents from 2018 to 2019. It has an alarming increase in recent years in the 20–29-year age group, with approximately 101.9% increase in 2019 compared to 2015. N=152,754 cases of syphilis contamination were reported in 2019, as seen in Table 5 that almost 60% of these cases were diagnosed in men.

The last STIs analyzed is acquired immunodeficiency syndrome (AIDS), caused by the HIV virus that interferes with the immune system, leaving the infected person vulnerable to acquiring other types of diseases. It is noted that there was a decrease between the years 2015-2019, and that in all in those years were reported n=24,478 cases of AIDS in the age group 15 to 24 years. Of n=37,302 cases of AIDS in 2019, n=26,141 were men and n=11,161 were women, data analyzed in table 6. Table 7 shows the number of AIDS deaths in 2015-2019, with n=58,729 deaths reported. Observing a small decrease, in 2015 n=12,667 was reported and in 2019, n=10,565 reported deaths, resulting in a decrease of n=2,102 deaths.

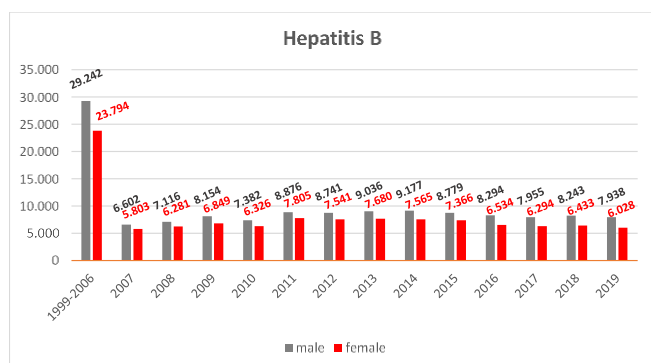


Figure 1. Hepatitis B cases by sex and year of notification (1999-2019). Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Notes: (1) Data as of 12/31/2019; (2) Preliminary data for the last 5 years.

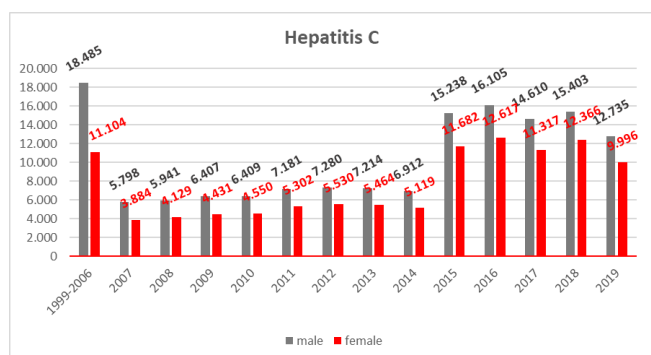


Figure 2. Hepatitis C cases by sex and year of notification (1999-2019). Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Notes: (1) Data as of 12/31/2019; (2) Preliminary data for the last 5 years.

Table 3. Deaths from hepatitis as the underlying cause, per year of death (2013-2018)

Deaths	2013	2014	2015	2016	2017	2018
Hepatitis A	35	29	24	29	22	28
Hepatitis B	456	469	451	477	414	424
Hepatitis C	2.013	2.087	2.028	2.023	1.720	1.574
Hepatitis D	38	41	38	51	2	1

SOURCE: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Notes: (1) Data as of 12/31/2018; (2) Preliminary data for the last 5 years.

Table 4. Cases of pregnant women with syphilis according to age group per year of diagnosis (2015 - 2020).

Age group	2015	2016	2017	2018	2019	2020
10 to 14 years	451	519	622	717	636	250
15 to 19 years	8.535	9.934	12.936	15.728	14.667	5.761
Ignored	-	1	6	5	-	-

SOURCE: MS/SVS/Department of Chronic Diseases and Sexually Transmitted Infections. NOTES: (1) Data as of 30/06/2020; (2) Preliminary data for the last 5 years.

Table 5. Cases of syphilis acquired by gender and year of diagnosis (2015 - 2020).

Acquired Syphilis	2015	2016	2017	2018	2019	2020
Men	41.745	54.083	71.743	94.715	91.355	30.753
Women	27.534	37.048	50.285	64.144	61.399	18.337

SOURCE: MS/SVS/Department of Chronic Diseases and Sexually Transmitted Infections. NOTES: (1) Data as of 30/06/2020; (2) Preliminary data for the last 5 years.

Table 6. AIDS cases reported in SINAN, declared in sim and registered in SISCEL/SICLOM per year of diagnosis (2015 - 2020)

AIDS cases	2015	2016	2017	2018	2019	2020
Men	27.768	26.979	26.809	26.619	26.141	8.434
Women	13.219	12.438	11.717	11.419	11.161	3.442
Between 15 and 24 years old	5.138	4.919	4.990	4.764	4.667	1.532

SOURCE: MS/SVS/Department of Chronic Diseases and Sexually Transmitted Infections. NOTES: (1) SICLOM used to validate SISCEL data; (2) SINAN from 1980 to June/2020, SISCEL from 2000 to June/2020 and SIM from 2000 to 2019; (3) Preliminary data for the last 5 years.

Table 7. Deaths from basic AIDS and Crude mortality rate from AIDS (per 100,000 inhabitants), per year of death (2015-2019)

Deaths	2015	2016	2017	2018	2019
DEATHS FROM AIDS	12.667	12.540	11.735	11.222	10.565
Crude mortality rate	6,2	6,1	5,7	5,4	5

SOURCE: MS/SVS/SIM - Mortality Information System.

Adolescence is pointed out by interpersonal conflicts, physical, psychological and social transformations, and this phase is marked by the passage of puberty, which brings physiological and morphological changes, begins

approximately at the age of 12 and permeates until the age of 18, according to the ECA (Statute of the child and adolescent). Adolescence is situated between childhood and adulthood, and it is during this period that the discovery of their sexuality, the individual as if, self-image, sexual option and attraction to the opposite sex or the same sex, being important in this phase the guidelines to prevent recurrent diseases of an unsafe sexual act (JARDIM *et al.*, 2013).

It is observed that even the population knowing that condom use is important for the prevention of STIs and young people presenting higher proportions of their use, it is still far from reaching satisfactory levels. One study believes that condom use depends on beliefs and values and even on the myth of impaired sexual performance. Students present different concepts on the subject (ALMEIDA *et al.*, 2017).

The common dependence in childhood gives way to a confusion of roles, because the adolescent, being neither child nor adult, has difficulty in defining himself as an individual, in assuming his social role and his new responsibilities, including with self-care. It becomes more vulnerable, with proposals for disease prevention and health promotion for this population. At this stage of life, risk and vulnerability are linked to the characteristics of psych emotional development: on the one hand, the feeling of immunity, omnipotence, the desire to try new things; on the other hand, shyness and low self-esteem can make it potentially fragile, leading you to external solutions that are inadequate to your problems, such as drug use. (CARNEIRO, *et al.*, 2015).

The World Health Organization (WHO) has estimated more than 1 million new cases of STIs per day worldwide. Syphilis during pregnancy leads to more than 300,000 fetal and neonatal deaths per year worldwide. It was observed through a study that 27.5% of Brazilian students in the 9th grade of elementary school have had sexual intercourse at some time. Among these, 36.0% were male, while in females this percentage was 19.5%. Of the 27.5%, 61.2% stated that they had used condoms (Carvalho; Cunha; Miranda, 2018.) It was observed as a great cause for these infections the lack of knowledge of adolescents, the lack of communication, the existence of taboos or for fear of assuming a sexual relationship before the family, and may cause them to experience unsafe sexual practices. In a study conducted 100% of the adolescents investigated knew that the transmission of STIs occurred through sexual intercourse, for 63.0% of these adolescents' condom use was the most appropriate method for prevention, 28.3% cited the use of the contraceptive pill and 5.6% cited the morning-after pill as a method; that is, these 33.9% were seeing a pregnancy as the only possible problem in a sexual act (GENZ *et al.*, 2017).

Considering that, after the family environment, it is the school that complements the education given by the family, this has an immense responsibility in the formation of its students. In the school period, the body development generated by hormones begins, rest outing the sexuality of adolescents. It is up to the school to provide guidance, a commitment on the part of educators. This responsibility is often transferred by parents and demanded by the students

themselves (ALMEIDA *et al.*, 2017).

Through the analysis of another study in a group of n=532 participating adolescents, it was seen that 36.6% of the girls and 43.3% of the boys had already had sex. Condom use in the first relation was mentioned by 72.1% of girls and 74.0% of boys, and in the last relationship 55.4% of girls and 76.3% of boys continued to make use of this. Regarding the responsibility for the prevention of STIs, 96.6% felt that it was up to both men and women; 2.0% reported being the responsibility of the man; 0.8% thought the responsibility was the woman and 0.6% could not inform. When asked about the STIs they knew, 78.0% of the girls and 89.3% of the boys had adequate knowledge about which are considered STIs, and the boys showed to be more informed about the subject than the girls (GENZ *et al.*, 2017).

Through the study based on STIs of compulsory notifications in 2019, it is observed that n=13,966 cases of Hepatitis B, n=22,731 cases of Hepatitis C, n=15,303 cases of pregnant women with Syphilis among young women aged 10 to 19 years were reported, and 152,754 cases of Acquired Syphilis were reported. It also reported n=4,667 cases of AIDS among 15- to 19-year-olds, n=37,302 cases in all of the year and n=10,565 aids deaths (SINAN).

Given the above, we see the importance of preventive actions to reduce these infections, the numbers are high of contamination during the year in Brazil. The lack of knowledge has generated great consequences in the lives of adolescents who decide to start their sex life. It is suggested that there are educational campaigns, especially in schools, where there are a large number of young people. Guidance on the importance of a safe sex for the prevention of STIs and their means of treatment, stimulating the prevention and reduction of these cases.

4. Conclusions

Adolescence, because it is a phase of discoveries, constant doubts and curiosities regarding sexuality, it becomes necessary to know about STIs, their preventions and their treatments. The assimilation of adolescents on the subject can make them rethink and prove that adolescents are the largest affected by Sexually Transmitted Infections in Brazil; contributing to a decrease in the number of infected. The present study shows that the male population is quite affected, predominant sex in all infections analyzed. It shows very high numbers of notifications during the year, proving the importance of strategies to instruct mainly the young population, because that is when the sexual life usually begins, for a healthier and safer life of them and their partners.

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