



HIV Infection in Adolescents in Cuba, 1987 to 2018. An Epidemiological Approach

Alba Cortés Alfaro^{1*}, Rosaida Ochoa Soto², Ramón Suarez Medina³, Maria Isela Latero Abreu⁴, Jose Joaquin Joanes Fiol⁵ and Donelia Gámez Sánchez⁶

¹2nd Degree Specialist in School Hygiene, Master in Epidemiology, Researcher and Assistant Professor, Department of School Health, National Institute of Hygiene, Epidemiology and Microbiology (INHEM), Cuba

²2nd Degree Specialist in Psychiatry, Master's in Public Health, Researcher and Assistant Professor, Health Promotion and Disease Prevention Unit, Cuba

³1st Degree Specialist in Biostatistics, Professor and Researcher Auxiliari, Epidemiology, National Institute of Hygiene, Epidemiology and Microbiology (INHEM), Cuba

⁴1st Degree Specialist in Epidemiology, National Directorate of Epidemiology, STI-HIV/AIDS, MINSAP, Cuba

⁵1st Degree Specialist in Epidemiology, National Directorate of Epidemiology, STI-HIV/AIDS, Ministry of Health, Cuba

⁶First and Second Degree Specialist in Hygiene and Epidemiology, First Degree Specialist in General Medicine, Master's Degree in Infectious Diseases, Assistant Professor, National Institute of Hygiene, Epidemiology and Microbiology, Cuba

***Corresponding Author:** Alba Cortés Alfaro, 2nd Degree Specialist in School Hygiene, Master in Epidemiology, Researcher and Assistant Professor, Department of School Health, National Institute of Hygiene, Epidemiology and Microbiology (INHEM), Cuba.

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Abstract

Introduction: Adolescence, a period of turbulence with affective ambivalence, which together with the early onset of sexual intercourse and their unprotected practice make them a vulnerable stage to HIV/If you give.

Objective: Characterize the epidemiological behavior of HIV in adolescence (10 to 19 years) from 1987 (reporting the first cases in Cuba at these ages) to December 2018.

Method: Retrospective descriptive study of the total number of adolescents diagnosed with HIV in Cuba in the period January 1987 to December 2018. La information was obtained from the record of sexually transmitted infections (STIs) and HIV/AIDS of the National Epidemiology Directorate of the Ministry of Public Health (MINSAP).

Results: The universe was made up of the 2090 cases diagnosed with male predominance for a 63.3 with low percentages in the ages of 10 to 14 years with 38 cases (1.8%) throughout the epidemic, 1,434 (68.6) remain in asymptomatic status and 656 cases have developed AIDS for 31.4%. Of those who died of AIDS alone on the 14th. 5% of the 303 cases have died from this cause. As for its location, the highest percentages are in Outpatient Care.

Conclusions: Predominance of the male sex, the source of transmission was fundamentally homosexual. The highest percentage of those diagnosed with HIV is in outpatient status.

Keywords: HIV; Epidemiology; Geographical Distribution; Adolescence

Introduction

HIV continues to be a threat to global public health. According to figures from the Joint United Nations Programme on HIV/AIDS (UNAIDS), 36.7 million people were living with HIV in 2016 worldwide, resulting in 1.8 million new infections in 2016. Similarly, in 2016, one million people died worldwide from causes related to the virus, 20.9 million people living with HIV had access to anti-retroviral therapy (ART) in June 2017, representing or 17.1 mil-

lion in 2015 and 7.7 million in 2010. Intensified efforts to expand treatment coverage, mainly for children and adolescents, which in 2016 were included in ART programs, are still needed. The World Health Organization (WHO) supports countries to accelerate their efforts to diagnose and treat these vulnerable population groups in a timely way [1].

The African region remains also the hardest hit, with nearly two-thirds of the world's new HIV infections [1].

UNAIDS Coordination Board approved at its 37th meeting, the UNAIDS Strategy for 2016-2021, which is one of the first in the SYSTEM of United Nations aligning with the Sustainable Development Goals, which set the framework for global development policy for the next 15 years, including ending the AIDS epidemic by 2030. In 2016 WHO, published the second edition of its Unified Guidelines on the Use of Antiretrovirals in the Treatment and Prevention of HIV Infection [1].

Worldwide, in 2014 there were 220 000 new HIV infections among adolescents, of which more than 60% were girls and women, a figure that is higher in sub-Saharan Africa. However; Despite these events, adolescents are less likely to be screened than adults [2].

It is estimated that one-seventh of new HIV infections around the world occur during adolescence and often affected people do not know their problem and it is proposed that "adolescents face difficult social and emotional pressures, and often confused, while going from children to adults, they need HIV prevention medical services tailored to their situation", according to the WHO, as well as saying that this population group is less likely to be tested than adults and they need more help to monitor their health and pursue antiretroviral therapy. In this regard, it is noted in surveys conducted by this organization in 2011 and 2012, that adolescents around the world expressed their concerns and the difficulties they face; including a lack of sufficient access to HIV testing, counselling and treatment [3,4].

The World Health Organization (WHO) reports that more than two million adolescents between the ages of 10 and 19 live with the human immunodeficiency virus (HIV), figures that show that the number of infected has increased by one-third in the last decade, a phenomenon that it is due to the lack of education programs on the subject aimed at this age group and because they do not receive the care or support they need and sometimes do not even know their status as infected, so millions more adolescents are at risk of infection. The entity proposed a guide to addressing this situation based on advice, including recommendations to governments to revise their laws to make it easier for young people to obtain HIV testing without the need for parental consent as well as the importance of creating health services in improving the quality of care and social support for the infected [5]. The international community is committed to ending the AIDS epidemic as a public health threat by 2030 [6].

Adolescence, a period of turbulence with affective ambivalence, which together with the early onset of sexual intercourse and their unprotected practice make them a vulnerable stage to HIV infection.

Adolescence, a period of life between the ages of 10 and 19, is a crucial stage, because it produces profound physical, psychological and social changes. It is a stage in which they are exposed to risky factors and behaviors that are respectively the elements that increase the likelihood of triggering or associated with triggering some undesirable event, getting sick or dying and repeated actions outside limits, which may deflect or compromise their normal psychosocial development, with detrimental repercussions for current or future life [7-10].

Lack of information to protect against STIs/HIV/AIDS and indiscriminate and unprotected sexual activity are factors and risky behaviors that are more relevant to the acquisition of these infections, and difficult to comprehend by having this a long period of incubation and not see in a risky behavior immediate consequences. In addition, many teens are unaware of what is meant by risky sexual behavior and even knowing the risk, many believe that they themselves are invulnerable.

The United Nations Children's Fund (UNICEF), calls for increased investment in all aspects of adolescent life and well-being and even in their struggle for survival by referring that 1.4 million adolescents die each year traffic accidents, complications in childbirth, suicide, AIDS, violence and other causes [11] and warns that new HIV transmissions in adolescents could increase by 60% in 2030 [12].

Cuba excels among countries in the region and the world that have a consolidated response to cross-sectoral HIV/AIDS, which enables the care and surveillance of patients in their community, where they receive free treatment and in 2015 was the first to receive validation of the elimination of maternal and child transmission of HIV and congenital syphilis by WHO thanks to the efforts of the Cuban State.

Cuba's services are part of an equitable, accessible and universal health system, in which maternal and child health programmes are integrated with HIV and sexually transmitted infections programmes.

The need to identify the epidemiological characteristics of HIV infection, among the total number of adolescents reported as HIV-positive since the onset of the epidemic for these ages in the period January 1987 and 2018 in Cuba, motivated the realization of this study.

Methods

A retrospective descriptive study was conducted on the total number of adolescent cases diagnosed as HIV in Cuba in the period

January 1987 to December 2018. The universe consisted of the 2090 cases reported in the country.

The information was obtained from the registry of sexually transmitted infections (STIs) and HIV/AIDS from the National Epidemiology Directorate of the Ministry of Public Health (MINSAP). The variables analyzed were: sex, age, skin color, year of occurrence, forms of transmission, infection stage and province of residence.

The processing was done using the SPSS version 15.0 statistical package, obtaining absolute frequencies and percentages. Masculinity index was calculated, taking into account the number of male subjects relative to female for all provinces.

Results

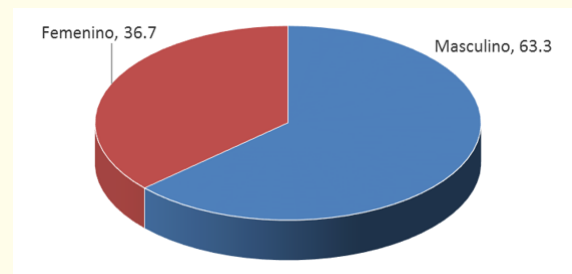
Cases diagnosed with HIV infection in adolescents in the country, from 1987 to 1 December 2018 (Table 1), corresponded to a total of 2090 cases, with male predominance (63.3%), age 10 to 19 (98.2%) white skin color (56.7%). Graph 1, 2, 3. The trend of incidence has been to increase both for the total and for each sex since 1995 (Figure 1).

Socio-demographic features		
	No	%
Sex		
Female	766	36,7
Male	1324	63,3
Age		
10-14 a	38	1,8
15-19 a	2052	98,2
Skin color		
White	1186	56,7
Mestizo	551	26,4
Black	274	13,1
Doesn't report data	79	3,8
Total	2090	100,0

Table 1: Sociodemographic characteristics of cases diagnosed with HIV.

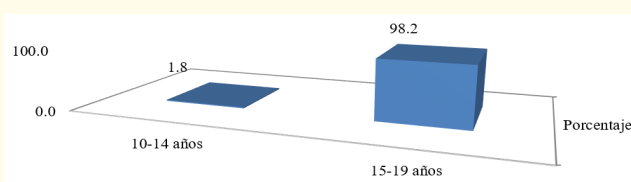
Source: National Directorate of Epidemiology. MINSAP.

The province of Havana has the highest case rates for both sexes (38.1 and 40.3%), followed by Villa Clara (6.5% and 7.2%) and Santiago de Cuba (8.6% and 8.8%), it is worth noting the contribution of Pinar del Río in the male (5.7%) and Youth Island in the female sex (5.7%), especially the latter which is a small territory whose population is only 0.8% of the country. Except for two



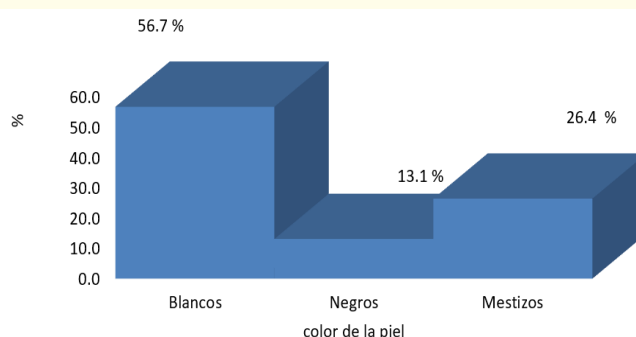
Graph 1: Distribution of adolescents with HIV according to sex. Cuba 1987-2018.

Source: National Directorate of Epidemiology. MINSAP.



Graph 2: Distribution of adolescents with HIV according to age groups. Cuba 1987-2018.

Source: National Directorate of Epidemiology. MINSAP



Graph 3: Distribution of adolescents with HIV according to skin color. Cuba 1987-2018.

Source: National Directorate of Epidemiology. MINSAP

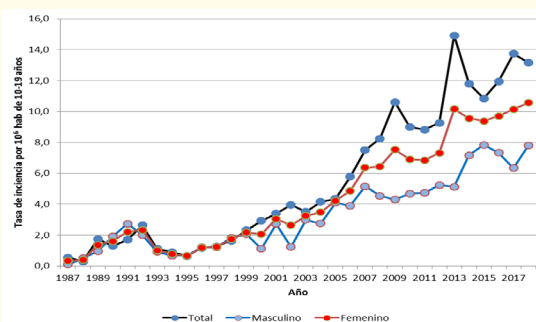


Figure 1: Trend of diagnosis of IVH/AIDS in adolescents. Cuba, 1987-2018.

territories, in the rest the predominance of morbidity corresponds to the male sex with higher masculinity index in Matanzas (308.3%), Pinar del Río (262.1%) Artemis (204.1%) (Table 2).

Province	Female		Male		Total		Masculinity index
	No	%	No	%	No	%	
River Pinar	29	3,8	76	5,7	105	5,0	262,1
Artemis	25	3,3	51	3,9	76	3,6	204,0
Havana	292	38,1	533	40,3	825	39,5	182,5
Mayabeque	17	2,2	26	2,0	43	2,1	152,9
Matanzas	12	1,6	37	2,8	49	2,3	308,3
Villa Clara	50	6,5	95	7,2	145	6,9	190,0
Cienfuegos	24	3,1	37	2,8	61	2,9	154,2
Sancti Spíritus	14	1,8	24	1,8	38	1,8	171,4
Blind of Avila	29	3,8	51	3,9	80	3,8	175,9
Camagüey	35	4,6	64	4,8	99	4,7	182,9
Las Tunas	19	2,5	33	2,5	52	2,5	173,7
Holguín	39	5,1	64	4,8	103	4,9	164,1
Granma	41	5,4	77	5,8	118	5,6	187,8
Santiago de Cuba	66	8,6	116	8,8	182	8,7	175,8
Guantanamo	30	3,9	22	1,7	52	2,5	73,3
Isla de la Juventud	44	5,7	18	1,4	62	3,0	40,9
Total	766	36,7	1324	63,3	2090	100,0	172,8

Table 2: Distribution of HIV cases in adolescents by sex and diagnostic province. Cuba 1987-2018.

Source: National Directorate of Epidemiology. MINSAP.

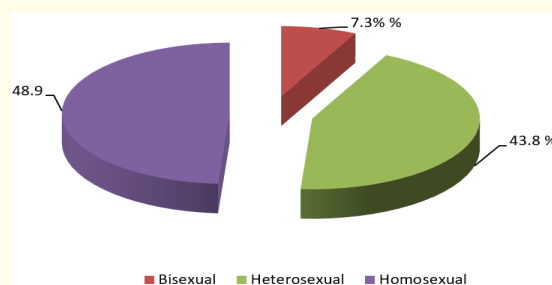
Table 3, Graph 4, shows the route of transmission of HIV, predominantly the homosexual sexual intercourse with 48.9% followed by heterosexual with 43.8%.

Transmission routes	No.	%
Bisexual	153	7,3
Heterosexual	916	43,8
Homosexual	1021	48,9
Total	2090	100,0

Table 3: Hiv transmission pathways of adolescents under study. Cuba, 1987-December 2018.

Source: National Directorate of Epidemiology. MINSAP.

In the distribution of HIV cases in adolescents as it evolves since 1987-December 2018, (Table 4) it is observed that only 31.4% have developed AIDS.



Graph 4: Routes of transmission of adolescents with HIV. Cuba 1987-2018.

Source: National Directorate of Epidemiology. MINSAP

Diagnostic	No.	%
VIH	1434	68,6
SIDA	656	31,4
Total	2090	100,0

Table 4: Distribution of adolescents according to diagnosis. Cuba, 1987-2018.

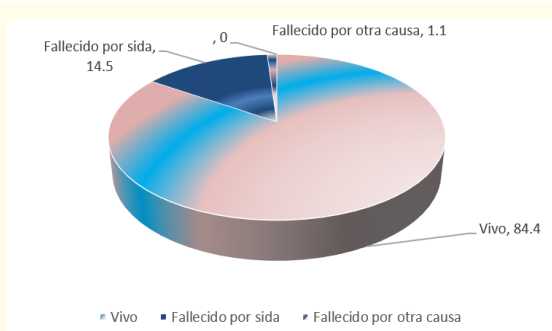
Source: National Directorate of Epidemiology. MINSAP.

According to the overall behavior of the epidemic (Table 5), Graph 5 we see that 1764 (84.4%) are living, deceased with AIDS 303 (14.5%) and died of other causes, 23 cases for 1.1%.

Status by condition	No.	%
Vivo	1764	84,4
Died of AIDS	303	14,5
Deceased for another cause	23	1,1
Total	2090	100,0

Table 5: Distribution of HIV/AIDS cases in adolescents as it evolves. Cuba 1987-December 2018.

Source: National Directorate of Epidemiology. MINSAP.



Graph 5: Distribution of HIV/AIDS cases in adolescents according to evolution.

The survival of HIV/AIDS adolescents is high (Table 6), in most provinces, showing higher indicators in the provinces of the eastern half of the country from Ciego de Avila, reaching up to 94.2% in Las Tunas. By contrast Sancti Spíritus (39.5%), Pinar del Río (36.2%) and Villa Clara (26.9%) are the provinces with the highest lethality of the disease.

The predominant location of cases diagnosed with HIV is in outpatient care (70.2%) of 1467 of the total. In prison sanatorium a 0.7 5 with 14 cases. A small percentage of 0.2%, with 5 cases were in the condition of pending attention (Table 7).

Province	Vivo		Died of AIDS		Deceased for another cause	
	No	%	No	%	No	%
River Pinar	66	62,9	38	36,2	1	1,0
Artemis	63	82,9	11	14,5	2	2,6
Havana	707	85,7	113	13,7	5	0,6
Mayabeque	38	88,4	4	9,3	1	2,3
Matanzas	42	85,7	7	14,3	0	0,0
Villa Clara	101	69,7	39	26,9	5	3,4
Cienfuegos	52	85,2	8	13,1	1	1,6
Sancti Spíritus	23	60,5	15	39,5	0	0,0
Blind of Avila	72	90,0	8	10,0	0	0,0
Camagüey	92	92,9	6	6,1	1	1,0
Las Tunas	49	94,2	2	3,8	1	1,9
Holguín	90	87,4	11	10,7	2	1,9
Granma	99	83,9	16	13,6	3	2,5
Santiago de Cuba	165	90,7	16	8,8	1	0,5
Guantanamo	48	92,3	4	7,7	0	0,0
Isla de la Juventud	57	91,9	5	8,1	0	0,0
Total	1764	84,4	303	14,5	23	1,1

Table 6: Teenagers by state and provinces. Cuba, 1987-2018.

Location	No,	%
Outpatient Care	1467	70,2
Foreign	91	4,4
Deceased	326	15,6
Denied attention	16	0,8
Pending Attention	5	0,2
Lost observation	57	2,7
Sanatorium	14	0,7
Prison Sanatorium	14	0,7
Total	2090	100,0

Table 7: Location of adolescents diagnosed with HIV. Cuba, 1987-2018.

Source: National Directorate of Epidemiology. MINSAP.

Discussion

In Cuba, it has been characterized by maintaining a low-level epidemic, slow and urban decline that affects the male sex more and with higher incidence among men who have sex with other men (HSH). According to statistics on the situation of HIV/AIDS at the end of 2017 by automated registration of the Ministry of Public Health (MINSAP), there were a total of 28, 659 cases of HIV, including those killed 5048 (17.6%), who died of AIDS 4535 and for other causes 513, living with HIV 23611 (82.4%) and male dominance (81%). HSHs account for 70% of all diagnosed cases and 87% among male cases.

Adolescents accounted for 7% of cases (1955) in stage 1987-2017. (Cuba: Ministry of Public Health/National Directorate of Epidemiology. HIV/AIDS statistics).

The impact they have had on adolescent sex education, multiple educational programs at the school and community level, as well as by mass media such as the press, radio, television have contributed to greater protection these infections that could be the cause of the affection in this population in Cuba being relatively lower and that the trend of the epidemic, although it is ascending, as in the rest of the world, has not reached the magnitude than in other countries.

The National Strategic Plan for the Prevention and Control of STIs-HIV/AIDS (2014-2018) in Cuba establishes, among others, Improving the health of the population and increasing their satisfaction with the services provided, increasing their scope; proposals for further action to affect identified gaps in each area, thus promoting access for the most affected population; updating the normative bases of the prevention, care, support, treatment, diagnosis and surveillance processes that make up this plan [6].

The Family Physician and Nurse Program in which it is inserted into Primary Health Care (PSA), the National Strategic Plan for the Prevention and Control of STIs and HIV/AIDS 2014 – 2018 and the National Health Program for Health Care Integral Differentiated in Adolescence will facilitate the obtaining of higher results, enabling rates to be even lower in Cuba and that the trend of the epidemic, although it is ascending as in the rest of the world, does not reach the magnitude of other countries [6].

The Centers for Disease Control and Prevention (CDC), in its study on HIV among gay (gay) and bisexual men [13], suggests that gay and bisexual men are more severely affected by HIV and that in a study conducted in the United States from 2008 to 2010, gay, bisexual and other men who have sex with men (HSH) accounted for approximately 2% of the population and are the most severely

affected group of HIV. In 2010, gay and bisexual adolescent and young men (ages 13 to 24) accounted for 72% of new HIV infections in all people aged 13 to 24 and 30% of new infections in all gay and bisexual men. At the end of 2011, an estimated 500,022 people (57%) who lived in the U.S. and had been diagnosed with HIV were gay and bisexual men, or gay and bisexual men [13].

It is common for adolescents at this age to have sexual fantasies about their own sex and the other, feelings that may make you think you are bisexual; but the fact that a person assumes this behavior is not going to determine their lifestyle or change their behavior. Society creates established patterns and often puts pressure on young people and adolescents by defining them as heterosexual or homosexual; however, they may not fit any of these categories [14].

Villegas in his study found that among teens who reported having sex with other men, more than 54% identified as gay, 23% as bisexual, and 23% as heterosexual [15].

In Cuba since the beginning of the HIV epidemic in 1986, sexual transmission has been recognized as the main source of spread. Of the total diagnostic men, about 86% are HSH (men who have relationships with other men) and that these, like people who practice Transactional Sex (PPST) which is nothing more than people who practice sex in exchange for some object, money or privilege. These people who engage in transactional sex regularly have relationships with a high number of sexual partners and are therefore vulnerable to sexually transmitted infections including HIV which is currently at highest risk, like young people who are vulnerable to HIV groups [16].

Knowing the age of onset of sexual intercourse makes it easier to target and target actions that aim to neutralize the risk of HIV transmission, so that adolescents are able to decide for themselves when to start your sexual relationships, but accompanied by sufficient knowledge, skills and skills, that allow you to opt for self-care and the care of your partner [17].

Cortés, in his adolescent HIV infection study. Cuba (1987-2014), found that within the total of diagnosed, 1557 were adolescents, and the sources of transmission prevailing was homobisexual, as opposed to current results, where homosexuality predominates [18].

Reports say that at least 28.0% of adolescents in South Africa are infected with HIV; 85.7% more compared to 4% affecting males; according to a report by the official SAPA news agency. This stratospheric difference is attributed, according to the head of the South African Ministry of Health, to the number of older men sexu-

ally abusing and/or sexually exploiting adolescent girls, "it is clear that girls were not having sex with young people of the mselv age, but with older men", he also said, "They are tearing our children apart", because adults abuse or seduce teenagers with gifts and promises to give them a better life, which their parents cannot give them [19].

In Cuba, the results of the 2014 Multiple Indicators by Conglomerates Survey (MICS) conducted by the Directorate of Medical Records and Health Statistics of the Ministry of Public Health, in collaboration with UNICEF, as part of the MICS' global program found among its main results in adolescent populations aged 15 to 19, where 1039 (12%) were female and 511 males, for 14%, that 94% of females and 88% of males were aware of a place to take the test; as well as known from its results, specifically those in the last year for females and males with 19% and 16%; Respectively [20].

A study of HIV mortality in Colombia and the period 2005 – 2014 found that for ages 10 to 14 there were 40 deaths (0.7%) 248 deaths (1.5%) accounted for the age 15-19 to represent a total of 288 deaths (9-year period). The results of this study for a period of 31 years were reported for the group of 10 to 19 years 303 deceased for 14.5% [21].

Other strengths that are available for the sake of prevention are the different normative documents such as programs and resolutions that give curriculum output for all the teachings of the National Education System that counts among other topics the Sexuality education and Prevention of STIs including HIV/AIDS from gender, rights and sociocultural approaches [21-24].

Health care and treatment coverage in Cuba is guaranteed and there is rigorous monitoring of people living with HIV or are sick or sick with AIDS. There are different counseling services in which face-to-face, anonymous, telephone and National Helpline are found; among others. In the National Strategic Plan for the Prevention and Control of STIs and HIV/AIDS 2014–2018, the regulatory bases for prevention, care, support, treatment, diagnosis and surveillance processes, which are an integral part of the prevention, care, support, treatment, diagnosis and surveillance processes, were updated. In the country there is also a counseling center for adolescents called "Centro a+ Espacios Adolescentes" In Old Havana, the first of its kind in the country, focused on the age of adolescents (12 to 18 years) with very good results from their creation.

An article published in the Granma de Cuba Newspaper entitled "Adolescents: The Urgency to Learn to Listen to Them" addresses the topic of incorporating the perspective of sexual rights, reproductive health and gender in trainings aimed at health profession-

als, general and higher education, and all sectors of society, as major challenges to bring adequate comprehensive sex education to adolescents [25], other aspects of treated for HIV infection is that 94.5% of adolescents and young people have some information about HIV infection, mainly provided by the media and promotional materials; while 58.1% of adolescents and young people have never been tested for HIV, mainly because they are uninfected. This is despite 91.1% knowing where to go for HIV testing. Because of stigma and discrimination, 5% have avoided health services, especially adolescents. They refer to a single adolescent who is sick is already evidence that Integral Sexuality Education, family, community and protective factors fail. It was emphasized that while the use of condoms has been increasing in both sexes, there are still reluctance to use it. Although only one in ten young people refuse to have sex if their partner proposes to use a condom, 26.1% believe they would still have a penetrating sexual relationship if their partner refuses to use it and 57% consider having absolutely no likely to become infected with HIV [26].

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