

THE AIDS EPIDEMIC IN SOUTH FLORIDA: BLACK NON-HISPANICS IN OUR COMMUNITIES REMAIN INCREASINGLY VULNERABLE

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Abstract

Objective. Demographic variables of individuals with AIDS were compared during two time periods (1993 - 1995 and 2011 - 2013). Incidence and mortality related data was also explored.

Methods. This is an observational study. Tests of significance were performed to identify differences or associations between selected groups. A correlation analysis was conducted to identify relationships between AIDS diagnosis and socioeconomic indicators.

Results. A reduction in new AIDS cases reported and AIDS-related mortality were observed. Nonetheless, AIDS is still disproportionately affecting the Black Non-Hispanic population. Black Non-Hispanic women remain particularly vulnerable to the disease. A positive correlation between AIDS diagnosis and poverty rate and the lack of health insurance and a negative correlation between AIDS diagnosis and education level was identified.

Conclusion. Though the actual number of AIDS cases is declining, it continues to disproportionately discriminate against our poorer, less well educated communities. Despite the availability of improved medications, people in these communities remain particularly vulnerable.

Keywords: AIDS,Disparities,Socioeconomic, Minority, Poverty

Introduction

The first cases of the disease now known as Acquired Immune Deficiency Syndrome (AIDS) were reported by the Center for Disease Control and Prevention (CDC) over 30 years ago (Centers for Disease Control and Prevention [CDC], 1981). Human Immunodeficiency Virus (HIV)/AIDS was initially diagnosed as Kaposi's Sarcoma and *Pneumocystis pneumonia* in a population of previously healthy men, 94% of whom self-reported their sexual preference as homosexual or bisexual (CDC, 1981). Nowadays however it is well established that AIDS is not confined to homosexual or bisexual men. In fact, heterosexual contact now plays a significant role in continuing the worldwide AIDS epidemic, and specifically the spread of the disease throughout the United States including Miami-Dade County and South Florida (Beck et al., 2012). In particular, heterosexual contact is the primary mode of HIV/AIDS transmission to women. This is significant since women represented 32% of all reported AIDS cases and 25% of all reported HIV cases in Florida in 2010 (Florida Department of Health [FDH], 2010) and almost a quarter of all HIV/AIDS cases nationwide (FDH, 2010).

Though HIV/AIDS is not confined to homosexual or bisexual men, globally men who have sex with men (MSM) remain at the most significant risk of HIV infection (Beyrer et al., 2010). In the United States, HIV infection in MSM is increasing by 8% annually (CDC, 2010) and this population now accounts for almost 50% of all the individuals living with HIV/AIDS and for 53% of all new HIV infections (CDC, 2012). The greatest prevalence and the highest incidence of HIV infection in MSM is found in Black MSM (Harawa et al., 2004). Throughout this article the term Black is used to include African Americans, Caribbean Americans, Africans and others who may not self-identify as “African Americans” but who are included in all HIV/AIDS surveillance data as such (Sutton et al., 2009). This high risk population of young Black MSM is difficult to reach, at least in part, due to the stigma associated with HIV/AIDS infection, belief in myths associated with prevention and transmission of HIV/AIDS (Beck et al., 2012), and in some parts of the world the threat of imprisonment.

This study provides a comparison of selected demographic variables and risk factors associated with individuals with AIDS during two three year periods (1993, 1994, 1995 and 2010, 2011, 2013) in Miami-Dade County, Florida. In addition, an interpretation of the most recent AIDS incidence and AIDS-related mortality data was provided. This is significant since according to the Florida Department of Health, Bureau of HIV/AIDS, Miami Dade County ranks first in the nation with the highest number of new AIDS cases per capita in the United States, and Florida ranks third in the nation in the number of persons living with AIDS. This study is timely since it coincides

with the recent development and release of the National HIV/AIDS strategy for the United States (NHAS) in response to the domestic AIDS epidemic that is disproportionately affecting minority populations.

Methods

This is an observational study of the AIDS epidemic in Miami-Dade County. Two three-year periods were selected for comparison: 1993, 1994, 1995 and 2010, 2011, 2013. The data were obtained from the State of Florida Department of Health, Bureau of HIV/AIDS (2012). The 1993 selection as the first year of the triennial was based on the CDC, HIV/AIDS criteria modification that took place during that year and 2013 is the last year for which complete data is available. The Statistical Package for Social Sciences (SPSS 21®) was used to organize, validate and analyze the data collected. Indicators of central tendency and dispersion: medians, means, standard deviations, standard errors of the mean, and 95% confident intervals were determined for quantitative variables, while frequencies and percentages were established for qualitative variables. The Chi-Square test or Fisher's exact test were used to identify differences in proportions or associations between categorical variables. Student's *t*-tests and Analysis of Variance (ANOVA) were performed in order to detect significant differences between selected groups. A correlation analysis was performed to identify significant relationships between AIDS diagnosis and selected socioeconomic indicators at the State level. A level of significance of 0.05 was selected for all tests of hypothesis.

Results

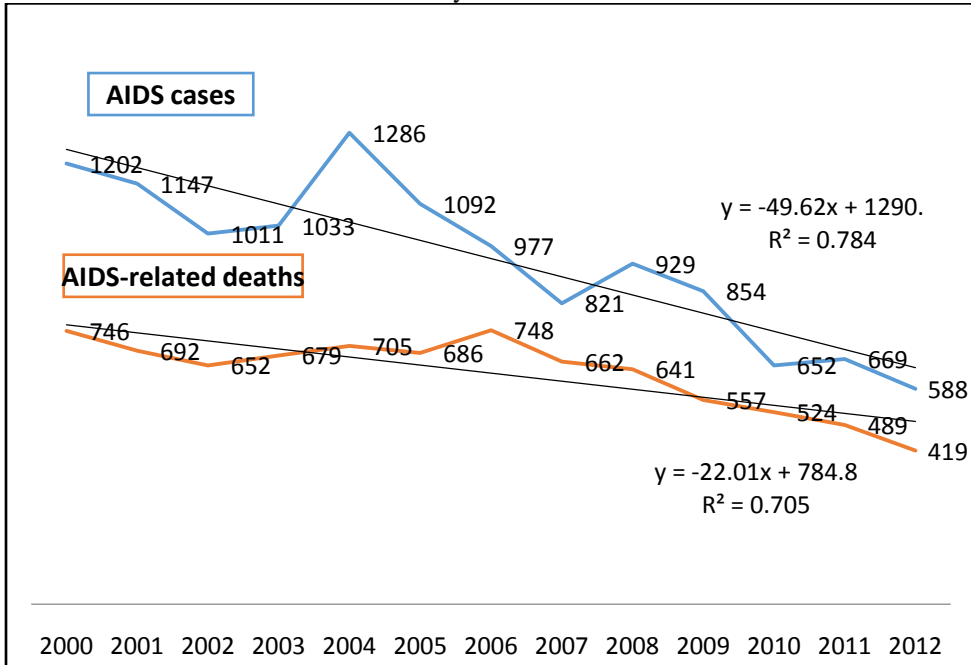
Analysis of the data from the State of Florida Department of Health, Bureau of HIV/AIDS revealed a total of 6,811 new AIDS cases reported during the first triennial period (1993, 1994 and 1995) and 1,829 new AIDS cases reported in the second triennial period (2010, 2011 and 2013) (table 1). In addition to this 72% reduction in incidence, there was a 93% reduction in AIDS-related mortality between these two triennial periods.

Table 1. The number of new AIDS cases diagnosed and deaths reported in triennial periods 1993 – 1995 and 2010 – 2013.

	New AIDS cases reported	Number of Deaths Reported
1993, 1994 and 1995	6811	2432
2010, 2011 and 2013	1829	164
Relative Difference	-72%	-93%

There has been a steady decline in both incidence and AIDS-related mortality in Miami-Dade County over the past decade (figure 1).

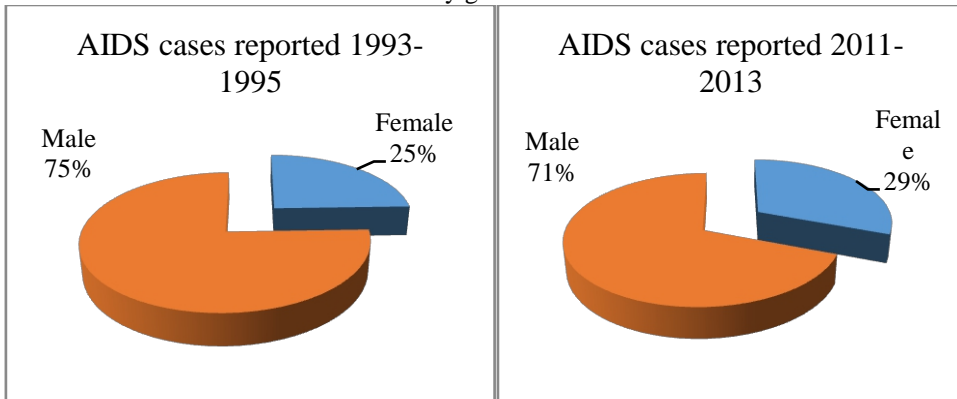
Figure 1. The number of new AIDS cases reported and AIDS-related mortality in Miami-Dade County from 2000 to 2012.



Gender

On comparing the two triennial periods, both the incidence of AIDS and AIDS-related mortality are reduced (table 1). However, the proportion of new female AIDS cases diagnosed in Miami-Dade County significantly increased from 25% in the 1993 - 1995 triennial, to 29% in the 2011 - 2013 triennial, $\chi^2_{(1)} = 12.8$, $p < 0.001$ (Figure 2) as did the proportion of women dying of the disease from 21.1% (1993 – 1995) to 32.0% (2011 – 2013), $\chi^2_{(1)} = 72.5$, $p = 0.000$.

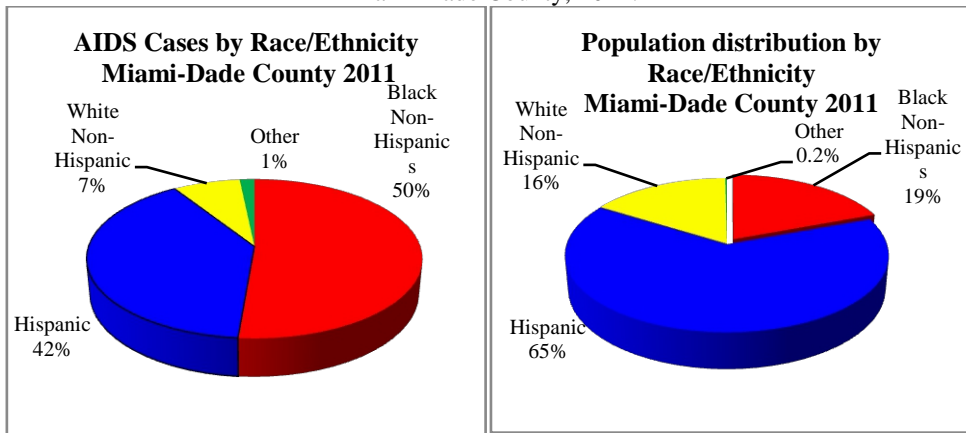
Figure 2. New AIDS cases reported in Miami-Dade County, 1993 - 1995 and 2011 - 2013 by gender.



Race/Ethnicity

According to the United States Census Bureau, the total population of Miami-Dade County in 2011 was 2,554,766. The majority (65%) of the population of Miami-Dade County in 2011 was of Hispanic or Latino origin (figure 3). The Black Non-Hispanic and White Non-Hispanic population of Miami-Dade County in 2011 represented 19% and 16% of the total population respectively. Though the Black Non-Hispanic population represented less than 20% of the total population of Miami-Dade County in 2011, this racial/ethnic group represented around 50% of all new AIDS cases reported in the County during the last triennial studied, 42% of reported cases were Hispanic and 7% were White Non-Hispanic (figure 3).

Figure 3. The proportion of AIDS cases by Race/Ethnicity compared to the population of Miami-Dade County, 2011.



Analysis of the two triennial periods revealed that the disparity among ethnic groups has widened over time. The proportion of Black Non-Hispanic AIDS cases reported in Miami-Dade County increased from 47% (1993 - 1995) to 49% (2011 - 2013) as the proportion of new AIDS cases reported by Hispanics significantly increased from 36% to 43% while the proportion of new AIDS cases reported by White Non-Hispanics decreased from 15% to 7%, $\chi^2_{(2)} = 91.9, p < 0.001$. Furthermore, the proportion of all AIDS-related deaths due to Black Non-Hispanic mortality notably increased from 47% (1993 – 1995) to 58% (2011 – 2013) as the proportion of AIDS-related mortality due to White Non-Hispanic and Hispanic deaths decreased over the same time period from 35% to 31% and 17% to 9% respectively.

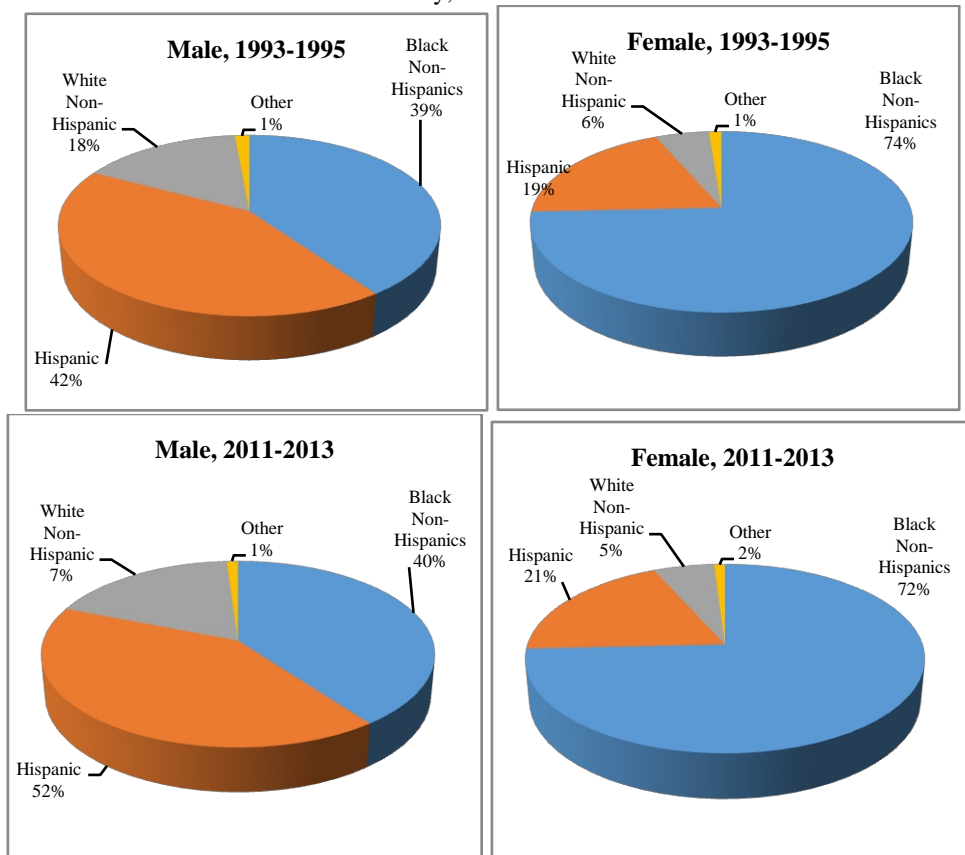
Gender and Race/Ethnicity

Further analysis of the incidence of new AIDS cases reported in Miami-Dade County in the two triennial periods by both ethnicity and gender reveals some parallels between the triennial periods. Between 1993 and 1995 Black Non-Hispanics accounted for 39% of all AIDS cases

reported by men yet 74% of all AIDS cases reported by women. In all other racial/ethnic groups, the proportion of new AIDS cases reported was greater in men. The same pattern was observed when the 2011 - 2013 triennial was considered (figure 4); Black Non-Hispanic men represented 40% of all AIDS cases reported by men yet Black Non-Hispanic women represented 72% of all AIDS cases reported by women.

The pattern of mortality, although disturbingly higher than the rest of the selected ethnic groups, is not significantly different among Black Non-Hispanic group between periods; 76% of all reported death was among Black Non-Hispanics during the first and second selected triennials. The proportion of Hispanic deaths increased from 16% in 1993-95 to 18% in 2011-13. A reduction of 3% in the reported deaths among White Non-Hispanics was observed between the two selected triennials.

Figure 4. Distribution of AIDS cases in Miami-Dade County by gender and race/ethnicity, 1993-95 and 2011-2013.



Age

The mean age at diagnosis for AIDS patients between 1993 and 1995 was 38 years old and between 2011 and 2013 it was 40 years old: A

significant increase ($t_{(4024)} = -1588, p = 0.000$). The proportion of new AIDS cases reported among adolescents (13 to 19 years old) increased from 0.5% in the 1993 – 1995 triennial to 1.3% in the 2011 – 2013 triennial. There were significantly more AIDS cases reported among the 65 years and older age group between 2011 and 2013 (3.8%) than between 1993 and 1995 (2.1%), $\chi^2_{(1)} = 15.8, p < 0.001$.

Exposure Category

Considerably more new AIDS cases were reportedly associated with heterosexual contact between 2011 and 2013 (43.2%) than between 1993 and 1995 (23.1%), $\chi^2_{(1)} = 291.4, p < 0.001$. A significant increase was also observed in the proportion of new AIDS cases reportedly associated with male sexual contact with other males between the selected triennial periods; 1993 -1995 (40.3%) and 2010 - 2013 (45%), $\chi^2_{(1)} = 12.4, p < 0.001$.

Socioeconomic Indicators

There is a significant positive correlation between AIDS diagnosis and socioeconomic indicators; poverty rate and the lack of health insurance (table 2). Education, as indicated by graduation from High School, is negatively correlated with AIDS diagnosis (table 2).

Table 2. Correlation between AIDS cases (51) in Miami Dade County and socioeconomic indicators.

Socioeconomic Indicator	Poverty Rate	Over 25 years of age with High School Diploma	No Health Insurance
Pearson Coefficient	0.375**	- 0.313*	0.779**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Census Bureau, 2010.

Discussion

In this study, changes in the maturing AIDS epidemic in Miami Dade County, Florida were reported based on observations of two tri-annual time points; 1993 – 1995 and 2011 – 2013. When these two time points are compared, a decrease in the actual number of new AIDS cases reported as well as a reduction in AIDS-related mortality was noted. In fact, there has been a gradual decline in both the incidence of AIDS and in AIDS-related mortality since 2002 (figure 1). This may be attributed, at least in part, to the implementation of more aggressive treatment strategies (such as HAART) that delay the progression from HIV infection to AIDS. Despite this reduction in both incidence and AIDS-related mortality, our observations reveal some disturbing trends and emerging issues associated with the increased vulnerability of our minority communities in South Florida and particularly the vulnerability of Non-Hispanic Black women to AIDS. These

observations should impact our intervention strategies moving forward.

Gender

Though men still account for most of the new AIDS cases reported, our observations reveal a significant increase in the proportion of women living with AIDS in Miami-Dade County, and a proportionate increase in AIDS-related mortality in women. HIV/AIDS in women continues to be a major public health concern particularly in our underserved communities where almost 75% of all HIV-infected women are racial and ethnic minorities, particularly black women (CDC, 2011). According to our observations, 75% of all new AIDS cases reported by women in Miami-Dade County in both triennial periods were reported by Black Non-Hispanic women. These women may acquire the virus through high risk heterosexual contact with men who have multiple sexual partners (CDC, 2011). These women may lack control over sexual activities, such as condom use, and may be in abusive relationships (Lichtenstein, 2005) making them vulnerable to infection.

Race/Ethnicity

Our observations reveal that the Black Non-Hispanic population of Miami-Dade County is disproportionately affected by AIDS when compared to other races/ethnicities. Although the total number of AIDS cases diagnosed decreased when comparing the two triennial periods, the proportion of new AIDS cases reported by Black Non-Hispanics actually increased. Furthermore, the proportion of all AIDS-related deaths due to Black Non-Hispanic mortality also increased. In comparing these two triennial periods, the incidence of AIDS cases among Hispanics also increased, though less significantly than in Black Non-Hispanics while the incidence of White Non-Hispanic AIDS cases actually decreased.

The disproportionate prevalence of AIDS in the Black Non-Hispanic community is fuelled, at least in part, by the increase in the incidence of AIDS in young black MSM between 13 and 29 years old (CDC, 2012) who often endure strict criminal justice policies as recently reported (CDC, 2012). A variety of external factors that disproportionately affect Blacks may account for the HIV/AIDS epidemic within our Black communities and include but are not limited to the increased prevalence of sexually transmitted diseases, high levels of unemployment, dysfunctional social networks leading to low levels of academic achievement, the increased likelihood of imprisonment, increased poverty, reduced access to new retroviral treatment options or simply non-compliance, preventative and health care disparities. These disparities are potentiated by unequal access by ethnicity to treatment innovations reported almost twenty years ago (Crystal,

Sambamoorthi & Merzel, 1995) making these communities most vulnerable to the spread of the epidemic. Culturally appropriate HIV/AIDS intervention programs must reach this target demographic and involve community leaders if they are to reduce the heavy burden of this disease on these communities. Interventions should set short term and long term goals and the most successful will involve evidence-based policy and cultural preventative strategies (Koblin, Tieu & Frye, 2012). Such a program is the Minority AIDS Initiative (MIA) implemented by the Florida Department of Health that focuses on minority communities to address the primary goals of the National HIV/AIDS Strategy (NHAS); raise awareness of HIV status, promote HIV testing and reduce the viral load within the community, encourage preventative care and initiate treatment implementation. In keeping with the goals of the NHAS; to reduce the number of individuals infected with HIV/AIDS, to increase access to care and improve health outcomes, and to reduce health disparities, the recent release of the Healthy People 2020 guidelines is timely. The Healthy people 2020 guidelines set objectives for improved HIV/AIDS diagnosis, testing and prevention.

Age

Most people living with AIDS in Miami-Dade County are between the ages of 40 and 49 years old (figure 5). Analysis of our data reveals two interesting observations 1) the proportion of AIDS cases reported among adolescents (10 to 19 years old) increased from 0.7% in the three year period from 1993 to 1995, to 1.6% in the three year period 2011 to 2013, driven by the increased incidence of AIDS in young Black MSM described previously; 2) over the same time period, the proportion of AIDS cases reported in the 65 years and older age group increased from 2.1% to 3.9% with the average age of persons now living with AIDS in Miami-Dade County increasing from 39 years to 44 years. This may be due, at least in part, to the highly active antiretroviral therapy (HAART) that improves life expectancy and the quality of life in those living with HIV (Mocroft et al., 2002) as well as newly diagnosed cases in the older age groups. In fact, according to the Florida Department of Health, newly reported HIV/AIDS cases among persons aged 50 and over increased by 28% from 2001 (17% of total) to 2010 (28% of total). The increased incidence of AIDS among the older population can be attributed to what has been referred to as the “Viagra Effect” (Jena, Goldman, Kamdar, Lakdawalla & Lu, 2010); increased sexual activity combined with infrequent condom use in this population, leading to enhanced susceptibility to sexually transmitted diseases including HIV/AIDS. In fact, many older adults remain sexually active and one in seven men report taking medication to improve sexual activity (Lindau et al., 2007).

Exposure Category

In Miami-Dade County the proportion of AIDS cases due to heterosexual contact increased from 22.9% in the 1993 to 1995 triennial, to 42.4% in the 2011 to 2013 triennial. This is in contrast to the rest of the United States where there was no statistically significant increase in HIV incidence from heterosexual contact (CDC, 2011). Black Non-Hispanic women are particularly vulnerable to contracting the disease in Miami-Dade County, possibly from unprotected sexual activity with a dominant older infected male in multiple relationships who may not disclose their HIV status (Simbayi et al., 2007)

According to our observations, the proportion of AIDS cases reported in MSM in Miami-Dade County remained relatively constant between the two tri-annual periods studied. Nationwide the incidence of HIV/AIDS has also remained relatively stable in MSM with the notable exception of young black MSM. The incidence of HIV/AIDS in this population has increased significantly from 2006 – 2009 (CDC, 2011).

Socioeconomic Indicators

A significant positive correlation between AIDS diagnosis and poverty rate was observed, suggesting that the disease discriminates against poorer populations. This connection is highly significant and not unexpected since good health and longevity is generally associated with high income/less poverty. Given that a lack of health insurance is a proxy for increased poverty, the positive correlation between AIDS diagnosis, poverty and the lack of health insurance is not unexpected. Those with AIDS may find it difficult to obtain employment (increased poverty), and may be discriminated against in the work place making career advancement unlikely, and since the employer is often responsible for health insurance, these uninsured individuals also have limited treatment options including limited access to the most aggressive (and expensive) treatment regimens such as HAART. It is generally acknowledged that a lower socioeconomic status is associated with an increase in the behaviors that increase AIDS risk; intravenous drug use, and unprotected sexual activity. However, contrary to this perception is the view that contracting AIDS is actually associated with behaviors more aligned with the lifestyles of the wealthy; increased travel, urbanization, multiple sexual partners. This demographic however is generally better educated than the poorer populations and thus more likely to make lifestyle adjustments when faced with adversity.

This study revealed that higher educational attainment, as indicated by graduation from High School, is negatively correlated with an AIDS diagnosis, indicating that those individuals most vulnerable to the disease are the least educated. Individuals who attend High School are more likely to

experience HIV/AIDS education, be more cognizant of the myths surrounding HIV/AIDS transmission, and be more responsive to educational campaigns regarding condom use and the importance of HAART regimen compliance for example. These results strongly suggest that an education initiative targeted to poorer communities may be used as a “tool” to slow the spread of the AIDS epidemic in South Florida.

Conclusion

In recent years, the CDC's efforts to combat AIDS in Miami-Dade County have been somewhat successful since the number of new cases of AIDS diagnosed is dropping and there has been a significant reduction in AIDS-related mortality over the past decade. However the AIDS epidemic is changing as it matures, now targeting our vulnerable poorer communities. The AIDS epidemic sweeping through South Florida and the United States is now a significant cause of mortality in women, particularly Black Non-Hispanic women infected by heterosexual contact, and disproportionately affects our ethnic/racial minority communities. The disease is changing and so must our intervention efforts. Injection drug use and high-risk alcohol-related sexual behavior are no longer the most likely means of infection and more focused interventions based on epidemiological studies and behavioral analyses of social and sexual networks should become more significant.

MSM remain the most significantly affected by AIDS, particularly young black MSM who engage in unprotected sexual activity. Only sustained community-based, culturally sensitive interventions that are appropriately disseminated to at risk minority groups, specifically Black Non-Hispanic women, young Black MSM, and older adults engaged in medication-supported sexual activity will be effective. Interventions must leverage the popularity of community leadership, include those currently living with HIV/AIDS and integrate age-appropriate educational initiatives. This is a communicable chronic disease that is 100% preventable with increased education, self-awareness and responsibility.

Limitations of this study

The HIV/AIDS data collection process in the United States has not been consistent during the period analyzed; changes in the diagnostic criteria have created inconsistencies in the number of cases reported in virtually all counties and in all racial/ethnic, gender, age and HIV/AIDS risk factor categories. The inconsistency of the data results in fluctuating data trends and complicates interpretation. The selection of two three-year periods for analysis and comparison as in this study reduces data inconsistencies and increases reliability.

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