May 2019

Changes in HIV Related Risk Behaviors: A Comparative Analysis of Florida's 2013 and 2016 Behavioral Risk Factor Surveillance System Survey.

Daniel Diyaolu
The Chicago School of Professional Psychology, danieldiyaolu@gmail.com

Changes in HIV Related Risk Behaviors: A Comparative Analysis of Florida's 2013 and 2016 Behavioral Risk Factor Surveillance System Survey.

Daniel Diyaolu, MPH

ABSTRACT

Background: *Identifying changes in HIV related risk factors is essential to reducing HIV rates in Florida. This study examines if changes occurred in HIV risk factors between 2013 and 2016.*
Methods: *The study utilized secondary data from the Behavioral Risk Factor Surveillance System from 2013 and 2016. A logistic regression analysis was conducted to examine the changes between the years regarding health care coverage and routine HIV testing. Additionally, a separate analysis was performed for the 2016 dataset analyzing if HIV risk behaviors varied by gender, race, age, insurance coverage and HIV testing.*
Results: *The findings of this study suggest that there have been changes in healthcare coverage over the years (p=0.006). Likewise, the results also revealed that the changes occurred among HIV testing over the years (p=0.000). The results of the 2016 analysis indicated that a statistical significance existed for race (p=0.040), age (p=0.000), gender (p=0.000) and HIV testing (p=0.000). However, no statistical significance was observed for health insurance coverage (p=0.916).*
Conclusions: *Strategies must be implemented to increase HIV testing in Florida and reduce the burden of HIV in the state. A needled exchange program may be beneficial in improving routine screening practices and reducing HIV risk behaviors.*

Diyaolu, D. (2019). Changes in HIV related risk behaviors: A comparative analysis of Florida's 2013 and 2016 behavioral risk factor surveillance system survey. *Florida Public Health Review*, *16*, 10-18.

BACKGROUND

Human Immunodeficiency Virus (HIV) is a virus that attacks the T-Cells in the body, lowering the immune system and rendering it defenseless against other bacteria and infections (Centers for Disease Control and Prevention (CDC), 2017). Left untreated, HIV can ultimately lead to Acquired Immunodeficiency Syndrome (AIDS) (CDC, 2017). Direct sexual contact and sharing needles are two of the primary methods of contracting HIV (CDC, 2017). HIV/AIDS has increasingly and severely impacted health and well-being in the United States. According to the CDC (2017), approximately 50,000 new infections occur each year. Furthermore, nearly 6,721 people died from HIV and AIDS in 2014 (CDC, 2017). HIV also disproportionately affects various populations and age groups. In 2014, HIV/AIDS was the 8th and the 9th leading cause of death among individuals aged 25-34 and 35-44 respectively (CDC, 2017).

The Problem

The HIV epidemic remains one of the biggest public health threats in the United States. According to the CDC (2017), there were approximately 1.1 million people infected in the United States by the end of 2014. Subsequently, 1 in 7 Americans infected by the virus remain unaware of their infection (CDC, 2017; Healthy People 2020, n.d.). What makes HIV a critical health problem is that there is currently no cure for the virus (CDC, 2017). Although no cure exists yet, individuals infected with HIV can employ various methods to reduce the virus count in the blood. Data depicts there was an 18% decrease in HIV infections from 2008 to 2014 (Healthy People 2020, n.d.). However, while the decline of those impacted by HIV has marked significant public health milestones, it has also led to some negative impacts. According to Healthy People 2020 (n.d.) public perception of the virus has declined in the United States. Since people with HIV are now living longer, thanks to medical breakthroughs, and effective treatments, people view the disease less seriously. Research illustrates that

there has been an increase in the number of uninfected people engaging in HIV related risky behaviors (Healthy People 2020, n.d.). Additionally, 91% of current HIV infections in the U.S. occurred from individuals unaware of their status and those not receiving health care (Healthy People n.d.).

Social and Behavioral Risk Factors

In the United States, the most common modes of HIV infection are through sexual intercourse and sharing of needles and syringes (CDC, 2015). There are various social and behavioral risk factors attributed to HIV. Health factors such as sexual intercourse with multiple partners and drug use that involve needles such as heroin, contribute to the increase in HIV rates (CDC, 2015). According to the Institute of Medicine (IOM) (2001), some social and behavioral risk factors associated with HIV include employment status, socioeconomic status, culture, income, stress, sexual practices, alcohol and drug use, physical environment and disease screening. Adequately addressing risk factors plays a significant role in the effectiveness of health programs. Individuals without jobs or in lower socioeconomic status may not have access to the necessary education and prevention methods. Stress may also cause an individual to engage in risky sexual practices and use alcohol and drugs such as marijuana, which lowers inhibition and cognitive functions (CDC, 2016). Heroin addiction may also cause some individuals to trade sex for drugs or money, which can lead to unprotected sex (CDC, 2016). Cultural and social myths and beliefs may also be risk factors by limiting individual's information and knowledge about HIV and sexually transmitted diseases (STDs) (IOM, 2001). The physical environment can also be a barrier, making HIV preventive methods inaccessible.

Literature Review/ Current knowledge

Several researchers have explored HIV and the factors impacting the prevalence of the disease. One of the factors examined by researchers is the issue of race. Carter et al. (2011) studied factors affecting HIV screening among African American and Puerto Rican adults. The authors concluded that new strategies are needed to increase testing among the target population. Similarly, Dariotis, Sifakis, Pleck, Astone, and Sonenstein (2011) explored sexual behavior and sexually transmitted diseases and the reason for racial and ethnic health disparities in men. The research findings confirmed that there was a difference in race and ethnicity regarding sexually transmitted infections (Dariotis et al., 2011). Based on the research, young black and Latino men were more likely than whites to have a history of STDs (Dariotis et al., 2011). Likewise, Mojola and Everett (2012) analyzed the differences in HIV risk factors among various races. The findings of their study revealed future studies should include additional racial and sexual identities.

Another risk factor explored by researchers is risk behaviors, particularly, injecting drug use. Ruger et al. (2014) conducted a study which examined the impact of a cost-effective intervention to address the issue of STDs and HIV among female injecting drug users (IDUs). The results of the study indicated that cost-effective interventions are essential in reducing HIV prevalence among IDUs. Likewise, Wisniewski et al. (2005) examined how gender and drug use impacted the mental health of people with HIV. The results of the study showed that injecting drug use does affect cognition and quality of life (Wisniewski et al., 2005). Similarly, Jones et al. (2009) also examined the mental health of HIV-positive and negative IDUs in South Florida. The research findings confirmed there was a difference in the mental health of HIV-positive IDUs not receiving treatment and those receiving treatment (Jones et al., 2009). Based on the research, HIV-positive IDUs not receiving ARV have overall poorer mental health than HIV-positive participants receiving treatment and non-IDU participants (Jones et al., 2009).

All five studies contributed to the body of knowledge through their findings. However, these studies also experienced various limitations that demonstrate the need for further research on HIV. In the five studies, the limitations encompass the inclusion of only African Americans and Puerto Ricans (Carter et al., 2011); findings which cannot be generalized to women (Dariotis et al., 2011); exclusion of racial and ethnic groups except Whites, African Americans and Hispanics (Mojola & Everett, 2012); not generalizable to male IDUs (Ruger et al., 2014); only included African Americans and Caucasian IDUs (Wisniewski et al., 2005); utilized only English-speaking participants who were older than 18, but younger than 60 (Jones et al., 2009). It is evident that more research is needed regarding HIV in the field of public health.

Rationale for Study

Over the years, tremendous efforts have been made by health researchers, clinicians, the government, private entities and other groups to reduce the burden of HIV in the United States. While those efforts have been most useful, HIV is once again becoming a primary concern in certain parts of the United States. While the virus can affect anyone, specific regions and groups are disproportionally affected. According to the CDC (2016), most cases of HIV/AIDS occur in metropolitan areas with 500,000 or more people. Additionally, Southern states have the most number of people living with HIV/AIDS (CDC, 2016). Florida is a southern state that is severely impacted by the HIV issue. Based on the HIV Surveillance Report, there has been an increase in HIV and AIDS cases in Florida (Florida health, 2016). The number of reported cases

in Florida rose from 5,938 in 2013 to 6,147 by 2014 (Florida Health, 2015). In 2014, Florida ranked number one in newly diagnosed AIDS cases with more than 2,370 cases. Furthermore, there was approximately 4,613 HIV diagnosis in Florida, making it the second highest state in the nation (Florida health, 2016). Florida also accounted for 12.8% of the national HIV prevalence estimate (Florida health, 2016). Having HIV also increases chances of having other diseases. In Florida, one in every 20 individual with an STD also has HIV (Florida health, n.d.).

Importance

The recent increase in HIV diagnosis in Florida has warranted the need for additional research on the topic. The research question will help ascertain the changes in HIV-related risk factors over the years in Florida. Likewise, the study adds to the body of knowledge by addressing some of the gaps identified in the current literature. Dariotis et al. (2011) postulated that in addition to individual risk behavior, sexually transmitted infections such as HIV are dependent on other factors. Moreover, racial disparities exist in young men and sexual risk behaviors (Dariotis et al., 2011). The research question accentuates the notion that various factors may affect risk behaviors. As Florida ranks high in new HIV rates, the results of the study may help pave the way for future HIV interventions in Florida.

Purpose Statement /Research Question

The literature review conducted above efficiently emphasized the current knowledge regarding HIV in the field of public health. After evaluating the studies, it is clear that researchers are currently exploring some of the factors linked to HIV acquisition such as environmental influences, gender, race, ethnicity, sexual preference, socioeconomic status, and substance use. However, the limitations experienced in the articles highlight the necessity for further research concerning HIV and risk factors. Additionally, there has been limited research conducted on the HIV prevalence in Florida. To better understand the health issue, the study will examine the changes in risk factors associated with HIV in Florida. The research question for the study is, 'What factors contributed to the increased prevalence of HIV in Florida?' In other words, has there been significant increases in factors such as drug use, limited access to care, etc.?

The purpose of the study is to gain insights on the changes in HIV-related risk factors in Florida that may have changed over the years. The research question builds on previous studies conducted on the topic and utilizes similar methodologies. The target population and population are adults over the age of 18 living in Florida.

Hypothesis

The primary purpose of this study is to gain a better understanding of the changes in various HIV-related risk behaviors between 2013 and 2016. The secondary goal of the research is to examine if HIV risk behaviors varied by gender, race, age, insurance coverage and HIV testing in 2016. The null hypothesis is 'No changes occurred among the variables between 2013 and 2016.' Contrarily, the alternate hypothesis is 'There was an increase in HIV related risk behaviors between 2013 and 2016.

METHODS

Population

The quantitative data employed for this study is from the 2013 and 2016 Behavioral Risk Factor Surveillance System (BRFSS) survey results. The general target population for the BRFSS conducted in Florida is individuals 18 years and older, who reside in a Florida household (Florida Health, n.d.). However, for the study, the population assessed encompassed Floridians aged 18-34 who partook in the phone survey during 2013 and 2016. According to the Centers for Disease Control and Prevention (CDC) (2017) individuals, age 20 to 34 accounted for the highest HIV diagnoses in 2014. Adults age 20 to 24 accounted for 7,084 new HIV diagnosis while individuals age 25 to 29 and 30 to 34 accounted for 7,510 and 5,437 respectively (CDC, 2017). Since participants of the BRFSS are required to be at least 18 years of age, the study parameters included individuals age 18 and 19.

A total of 34,186 and 36,955 Floridians were surveyed for the 2013 and 2016 BRFSS survey respectively. However, this study excludes participants age 35 and older. After omitting Floridians older than 35, n = 3,895 participants from the 2013 survey. Conversely, n = 5,384 participants for the 2016 BRFSS survey.

Variables

This study utilizes a regression analysis. The study examines approximately five variables. The variables observed in this study include age, gender, race, access to care and HIV risk factors.

Age: The independent variable for this study is age. The study only assessed Florida respondents age 18 to 34.

Gender: For this study, the gender categories include male and female.

Race: Ethnicities and races analyzed in this study include white, black/African American, Hispanic, others, and those who identify as multiracial.

Access to health: Questions incorporated from the survey about access to health include medical coverage.

HIV-related risk factors: The two variables assessed in the section include the last HIV test and participation in HIV related risky behaviors such as intravenous drug use, survival sex, inconsistent condom use, and multiple sex partners. In the BRFSS survey, risk behavior questions are asked together. Subsequently, respondents are instructed to answer yes if at least of the scenario is applicable.

All variables examined were nominal except 'last HIV test.' For the nominal variables, values were assigned to them to produce a numerical value. 'Last HIV test' represented scale variables since they consisted of intervals.

Data Collection

The study utilizes secondary data from the Behavioral Risk Factor Surveillance System (BRFSS). Data for this study was collected via telephone surveys from the BRFSS. The BRFSS is a data collection program by the CDC Division of Population Health that monitors health-related risk behaviors, chronic health conditions, and use of preventive services (CDC, 2017). The data is collected through phone interviews performed in all 50 states, the District of Columbia and three U.S. territories (CDC, 2017). States and territories collaborate with the CDC to develop the questionnaire. The questions consist of three sections, the core components, optional module and state-added questions (CDC, 2017). The core components encompass fixed core questions that include demographic characteristics, health behaviors, etc., rotating core questions asked every other year, and emerging core questions comprised of developing health issues (CDC, 2017, Florida Health, n.d.). States are discouraged from alternating any of the core questions. However, States may add items to the other sections of the survey (CDC, 2017, Florida Health, n.d.).

Data Analysis

Data collected from the BRFSS was extracted to IBM SPSS statistical software version 23. The SPSS statistical software was utilized to analyze the descriptive quantities of the dataset. Descriptive measures such as mean, maximum, mean, and standard deviation were ascertained from the chosen population. Then a logistic regression analysis was conducted among the variables to see if any statistically significant changes occurred between 2013 and 2016. The dependent variable is the years, while the independent variables are the risk situations aforementioned. Next, another logistic regression analysis was conducted to examine the associations between the race, access to health, age, gender, and risky behavior in 2016. A second logistic regression was performed because the 2013 BRFSS survey did not include the variable HIV risk behaviors. The significance level for the statistical analysis was 0.05

which translates to a confidence interval of 95%. There inquiries were performed for both the 2013 and 2016 BRFSS data.

STUDY RESULTS
Population Demographics

Out of the 34,186 and 36,955 Floridians surveyed in 2013 and 2016 BRFSS survey respectively, only 9,279 total were between the age 18-34 making them eligible for the study. Table 1 highlights the demographic characteristics of respondents from 2013 and 2016 in percentages and frequencies. For 2013 n=3,895. While in 2016 n= 5,384. 43.9% of respondents in 2013 were male, whereas 56.1% were female. Contrarily, 48.1% of respondents in 2016 were male, while 51.8% were female. In 2013, Whites made up 60% of survey respondents. Conversely, Blacks made up 13%, while those who identified as Hispanic, other, and multiracial represented 16.4%, 4%, and 1.8% respectively. Likewise, in 2016, a majority of respondents were Whites, who accounted for 51.3% of survey respondents. 26.2% of respondents were Hispanic. Those who identified as Blacks, Others and multiracial had the lowest response rates at 14.6%, 4.4%, and 1.9% respectively. 4.5% of survey respondent in 2013 refused to identify as any race. Likewise, 1.9% refused to answer in 2016. Of the 3895 participants in 2013 analyzed for this study, 35.4% were between the ages 18-24 while 64.6% were age 25-34. Similarly, respondents ages 18-24 accounted for 35% of respondents in 2016 while individuals age 25-34 made up 65% of the respondents.

2013 vs 2016 Comparison

A regression analysis was conducted to evaluate the null hypothesis, which indicates that there were no changes in HIV risk factors between 2013 and 2016. Table 2 illustrates the results of the analysis. The dependent variable for the regression analysis were the years, while the independent variables were Healthcare Coverage, and Ever Been Tested for HIV. For Healthcare Coverage, participants answered either Yes, No, Don't Know or Not sure. Conversely, for the variable HIV Testing, participants answered either Yes, No or Don't know/Not sure. There was a statistically significant difference between groups of each variable as determined by the logistic regression. The results of the analysis indicated that a statistical significance existed for healthcare coverage (p=0.006), and HIV testing (p=0.000). The null hypothesis was therefore rejected, and the alternative hypothesis was accepted that changes did occur in these risk factors between 2013 and 2016.

HIV Risk Situation Analysis

Due to the exclusion of the HIV risk behavior questions from the 2013 survey, the variable could not be compared with 2016. To further analyze the impact

---

of HIV risk behaviors in Florida, a separate analysis was performed for the 2016 dataset examining if HIV risk behaviors varied by gender, race, age, insurance coverage and HIV testing. HIV risk behaviors included intravenous drug use, survival sex, inconsistent condom use, and multiple sex partners. Table 3 depicts the results of the analysis. For the purpose of this analysis, only cases where participants answered Yes or No for HIV risk behaviors was analyzed. Cases were participants answered Don't know or refused to answer for HIV risk behaviors were excluded from the analysis. The results of the 2016 analysis indicated that a statistical significance existed for race (p=0.040), age (p=0.000), gender (p=0.000) and HIV testing (p=0.000). No statistical significance was observed for health insurance coverage (p=0.916).

Appendix A

Table 1, 2013 and 2016 Demographics

Demographics	2013 Total% (n/N)	2016 Total (n/N)
GENDER		
Male	43.9% (1708/3895)	48.1% (2591/5384)
Female	56.1% (2187/3895)	51.8% (2791/5384)
RACE		
White	60% (2349/3895)	51.3% (2761/5384)
Black	13% (507/3895)	14.6% (785/5384)
Hispanic	16.4% (638/3895)	26.2% (1408/5384)
Other	4% (155/3895)	4.4% (235/5384)
Multiracial	1.8% (72/3895)	1.9% (102/5384)
Refused	4.5% (174/3895)	1.7% (93/5384)
AGE		
18-24	35.4% (1377/3895)	35% (1882/5384)
25-34	64.6% (2518/3895)	65% (3502/5384)

Appendix B

Table 2, 2013 vs 2016 Logistic Regression

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	@_AIDTST3	.078	.022	12.637	1	.000	1.081	1.036	1.129
	HLTHPLN1	-.075	.027	7.586	1	.006	.928	.879	.979
	Constant	.296	.054	30.040	1	.000	1.344		

a. Variable(s) entered on step 1: @_AIDTST3, HLTHPLN1.

Appendix C

Table 3, 2016 HIV Risk Behavior Logistic Regression

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	SEX	.607	.090	45.504	1	.000	1.834
	@_RACE_G1	.087	.042	4.203	1	.040	1.091
	@_AGE_G	.603	.092	43.349	1	.000	1.827
	@_AIDTST3	.502	.088	32.793	1	.000	1.653
	HLTHPLN1	-.005	.051	.011	1	.916	.995
	Constant	-.861	.289	8.889	1	.003	.423

a. Variable(s) entered on step 1: SEX, @_RACE_G1, @_AGE_G, @_AIDTST3, HLTHPLN1.

DISCUSSION
Findings

The purpose of this study is to gain a better understanding of the changes in various HIV-related risk behaviors between 2013 and 2016. Finding a clear distinction among factors such as healthcare coverage, and HIV test between 2013 and 2016 is essential in influencing policymakers and healthcare professionals to create effective programs aimed at reducing the HIV rates in Florida.

In this study, the data was obtained from the CDC's BRFSS survey to examine changes in HIV related factors in Florida. Specifically, tests were conducted to determine if there is evidence that changes have occurred in Florida regarding known HIV risk factors such as health care coverage and HIV testing. The study findings illustrate that changes did occur in healthcare coverage between 2013 and 2016. The results of the logistic regression reveal that p = 0.006, which indicates a statistical significance between the two years (p<0.05). These changes may have occurred due to the enactment of the Affordable Care Act, which warranted health care coverage for many Americans previously uninsured (CDC, 2015). Likewise, the logistic regression results for HIV test also revealed was a difference over the years (p= 0.000). The study findings indicate that there has been changes in HIV testing in Florida.

Analysis of HIV risk behaviors in 2016 revealed that statistical significances were observed among for race (p=0.040), age (p=0.000), gender (p=0.000) and HIV testing (p=0.000). While, no statistical significance was observed for health insurance coverage (p=0.916). These results are consistent with findings by Dariotis et al. (2011) which revealed there was a difference in race and ethnicity regarding sexually transmitted infections. Furthermore, these findings coincide with the notion that gender impacts the risk of contracting the deadly virus (CDC, 2015).

Discussion

The results of this study are crucial because it emphasizes the changes in HIV risk factors between 2013 and 2016. The study findings indicated that changes occurred between 2013 and 2016 regarding

Page 15

healthcare coverage and HIV testing. The results may be attributed to multiple factors such as lack of access to healthcare, the fear and misperceptions about HIV risks, and the testing process itself (CDC, 2016). Additional effort must be made by program planners to increase HIV testing rates in Florida. Also, the study findings provide some insight on the current impact of HIV risk behaviors on particular age groups, genders, ethnicities, and HIV screening habits. The results illustrate that those who engage in HIV risk behaviors were not participating in routine HIV testing. Likewise, the findings also show that more emphasis needs to be placed on programs that target men since they are more likely to engage in HIV risk behaviors than women. Similarly, future interventions should also strive to reach minority ethnic populations.

The results of the study indicate that more Floridians have access to healthcare coverage. Contrarily, the findings also illustrate the need to improve HIV testing and reduce HIV risk behaviors in Florida. HIV remains a vital health threat in Florida. Reducing HIV rates in Florida requires various interventions, and policies aimed that different HIV-related risk factors. As aforementioned, the most common modes of HIV transmission in the United States are through sexual intercourse and sharing of needles and syringes (CDC, 2015). Injecting drug users are an essential population to focus on because drugs impair the mind, and often leads to various risky sexual behaviors (CDC, 2016; AIDS, 2016). Additionally, those who inject drugs are more likely to engage in other HIV risk behaviors such as trade sex for drugs, money, and other survival needs, which increases the chance of infection (AIDS, 2016).

In the United States, injecting drug users account for over 10% of HIV cases annually (AIDS, 2016). Injecting drug use also plays a crucial role in the transmission of HIV among heterosexuals (Strathdee & Stockman, 2010). Furthermore, the CDC (2016) estimates that if the trend continues, then 1 in 23 women and 1 in 36 men who inject drugs will be diagnosed with HIV in their lifetime. In Florida, 17% of people diagnosed with HIV are also injecting drug users (Florida health, 2015). Although efforts are being made to reduce the prevalence of HIV in Florida and the rest of the nation, various challenges prevent injecting drug users from getting help. According to the CDC (2016), injecting drugs is a criminal activity, which causes stigma, and mistrust and prevents IDUs from seeking treatment services. Likewise, HIV-positive IDUs have limited access to care with over 51% being homeless, while 30% are incarcerated, and 20% are uninsured (CDC, 2016). Policies aimed at injecting drug users may reduce HIV rates and increase HIV screening practices in Florida.

A policy implementation that may be enacted to increase HIV screening and reduce HIV rates is a Needle Exchange Program (NEP) in all high-risk Florida cities. The Miami-Dade Infectious Disease Elimination Act (IDEA) ratified in 2016, authorized the University of Miami to establish a syringe exchange program in Miami-Dade County (Pollara & Newman, 2016). The policy was recently enacted to allow needle exchange programs in Miami, but the rest of Florida remains at risk. According to the CDC (2016), people who inject drugs can significantly reduce their risk of infection by using new sterile needles for every injection. NEPs provide access to sterile syringes free of charge and ensure safe disposal of used needles (CDC, 2016). Contrary to popular belief, needle exchange programs do not promote drug use (Bruce & Altice, 2007). NEPs instead take a multifaceted approach to educate about safe practices, provide counseling and STD screening services, distribute condoms, provide referrals for drug treatments, link individuals to screening services and prevent mother to child transmission (Bruce & Altice, 2007; CDC, 2016). Furthermore, Bruce and Altice (2007) posited that a brief five-minute or less intervention at HIV appointments delivered by health care providers also reduces HIV risk behavior.

Implementing a needle exchange program in all Florida cities may have implications on problems identified in this study. While entirely ending all HIV risk behaviors would greatly benefit the population, it may be impractical. The complete cessation of drug use and 100% frequent HIV testing practices may be an unrealistic goal. Instead, implementing syringe exchange programs that reduce drug use frequency, links at-risk populations to HIV screening services and explains the importance of safer injecting and sexual practices may be more feasible (Bruce & Altice, 2007). A syringe exchange program can also provide access to drug users who are hard to reach or overlooked by the healthcare system.

Limitations/Future Considerations

Although this research aims to add to the body of knowledge, there are some limitations present in the study. Examining individuals in Florida creates a barrier for the study. For example, data collected may not apply to other communities, regions or states. The data would only reflect the population in which the study took place. Another limitation of this study may be in the data collection method. The Behavioral Risk Factor Surveillance System (BRFSS) is the largest continuously conducted health survey system in the world with data from all 50 states, the District of Columbia and three U.S. territories (CDC, 2017). The survey was conducted through phone interviews with residents of the states. Consequently, data from the

BRFSS are self-reported, possibly resulting in inconsistent reporting and bias.

Future research conducted on HIV risk factors in Florida should take these limitations into considerations. Additionally, future researchers may also explore additional factors excluded from this study. Factors such as sexual orientation, adults older than 35, socioeconomic status, and relationship status may also be examined in future studies to provide further insight on HIV risk behaviors in Florida.

CONCLUSIONS

All in all, HIV remains a prominent threat to Florida. While various efforts have been made to reduce the prevalence of the virus, the problem persists. This study was conducted to examine the changes in HIV risk behaviors between 2013 and 2016. The findings reveal that lack of HIV testing remains a significant issue in Florida, particularly among those who engage in HIV risk behaviors. Implementing a needle-exchange program in all high-risk Florida cities may be essential in reducing HIV risk factors. Likewise, the NEP may act as a gateway into the healthcare system, connecting those who engage in HIV risk behaviors to HIV screening, prevention programs, counseling, etc.

REFERENCES

AIDS (2016). *Substance Abuse/Use.* Retrieved from https://www.aids.gov/hiv-aids-basics/prevention/reduce-your-risk/substance-abuse-use/

Bruce, R. D., & Altice, F. L. (2007). Clinical care of the HIV-infected drug user. *Infectious disease clinics of North America*, *21*(1), 149-179.

Carter, W., Kraft, M., Hatfield-Timajchy, K., Hock-Long, L., & Hogben, M. (2011). STD and HIV Testing Behaviors Among Black And Puerto Rican Young Adults. *Perspectives On Sexual & Reproductive Health*, 43(4), 238-246 9p. doi:10.1363/4323811

Centers for Disease Control and Prevention (2016). Florida Health Profile Data. *Division of STD Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention.* Retrieved from https://www.cdc.gov/nchhstp/stateprofiles/pdf/Florida_profile.pdf

Centers for Disease Control and Prevention (2016). *Basic Statistics*. Retrieved from https://www.cdc.gov/hiv/basics/statistics.html

Centers for Disease Control and Prevention (2016). *HIV and Injection Drug Use.* Retrieved from https://www.cdc.gov/hiv/risk/idu.html

Centers for Disease Control and Prevention (2016). *About HIV/AIDS*. Retrieved from https://www.cdc.gov/hiv/basics/whatishiv.html

Centers for Disease Control and Prevention (2016). *HIV Transmission*. Retrieved from https://www.cdc.gov/hiv/basics/transmission.html

Centers for Disease Control and Prevention (2017). *Statistics Center*. Retrieved from https://www.cdc.gov/hiv/statistics/

Centers for Disease Control and Prevention (2017). *Behavioral Risk Factor Surveillance System (BRFSS) Overview.* Retrieved from https://www.cdc.gov/brfss/

Centers for Disease Control and Prevention (2016). *Syringe Services Programs.* Retrieved from https://www.cdc.gov/hiv/risk/ssps.html

Centers for Disease Control and Prevention (2016). *HIV and Injection Drug Use.* Retrieved from https://www.cdc.gov/hiv/risk/idu.html

Dariotis, K., Sifakis, F., Pleck, H., Astone, M., & Sonenstein, L. (2011). Racial and Ethnic Disparities in Sexual Risk Behaviors And STDs During Young Men's Transition to Adulthood. *Perspectives On Sexual & Reproductive Health*, *43*(1), 51-59 9p. doi:10.1363/4305111

Florida Health (2015). HIV Infection Among Those with an Injection Drug Use* - Associated Risk Florida, 2014. *Florida Department of Health.* Retrieved from http://www.floridahealth.gov/diseases-and-conditions/aids/surveillance/_documents/hiv-aids-slide-sets/2014/idu-2014b.pdf

Florida Health (n.d.). *BRFSS*. Florida Department of Health. Retrieved from http://www.floridahealth.gov/statistics-and-data/survey-data/behavioral-risk-factor-surveillance-system/index.html

Florida Health (2016). *Epidemiology of HIV infection Trends in Florida Diagnosed through 2014.* Florida Department of Health. Retrieved from http://www.floridahealth.gov/diseases-and-conditions/aids/surveillance/_documents/hiv-aids-slide-sets/2014/state_trends_2014b.pdf

Florida Health (2015). *HIV Infection Among Those with an Injection Drug Use* - Associated Risk Florida, 2014.* Florida Department of Health. Retrieved from http://www.floridahealth.gov/diseases-and-conditions/aids/surveillance/_documents/hiv-aids-slide-sets/2014/idu-2014b.pdf

Florida Health (2016). *HIV Data Center.* Florida Department of Health. Retrieved from http://www.floridahealth.gov/%5C/diseases-and-conditions/aids/surveillance/index.html

Florida Health (n.d.). *HIV/AIDS.* Florida Department of Health. Retrieved from http://www.floridahealth.gov/%5C/diseases-and-conditions/aids/index.html

Healthy People 2020. (n.d.). *HIV Overview*. Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/hiv

Institute of Medicine (US). Committee on Health, & Practice. (2001). *Health and behavior: The interplay of biological, behavioral, and societal influences. National Academies Press*. Retrieved from: http://www.ncbi.nlm.nih.gov/books/NBK43750/

Jeffries, L., & Johnson, D. (2015). Homonegative Attitudes and Risk Behaviors for HIV and Other Sexually Transmitted Infections Among Sexually Active Men in the United States. *American Journal Of Public Health*, *105*(12), 2466-2472.

Jones, D.L., Waldrop-Valverde, D., Gonzalez, P., Mack, A., Kumar, A.M., Ownby, R., Weiss, S.M. and Kumar, M. (2010). Mental health in HIV seronegative and seropositive IDUs in South Florida. *AIDS care*, *22*(2), 152-158.

Mojola, A., & Everett, B. (2012). STD and HIV Risk Factors Among U.S. Young Adults: Variations by Gender, Race, Ethnicity and Sexual Orientation. *Perspectives On Sexual & Reproductive Health*, 44(2), 125-133 9p. doi:10.1363/4412512

National Institute of Health (2016). HIV/AIDS. *National Institute on Drug Abuse.* Retrieved from https://www.drugabuse.gov/publications/research-reports/hivaids/letter-director

Pollara, B. & Newman, T. (2016). Syringe Access Legislation Passes Florida Legislature, Heads to Governor for Signature. *Drug Policy Alliance.* Retrieved from http://www.drugpolicy.org/news/2016/03/syringe-access-legislation-passes-florida-legislature-heads-governor-signature

Petersen, D. & Alexander G. R. (2001). *Needs assessment in public health: A practical guide for students and professionals*. New York: Springer

Ruger, J. P., Abdallah, A. B., Ng, N. Y., Luekens, C., & Cottler, L. (2014). Cost-effectiveness of interventions to prevent HIV and STDs among women: A randomized controlled trial. *AIDS and Behavior*, 18(10), 1913-1923. doi:10.1007/s10461-014-0745-8

Strathdee, S. A., & Stockman, J. K. (2010). Epidemiology of HIV among injecting and non-injecting drug users: current trends and implications for interventions. *Current HIV/AIDS Reports*, *7*(2), 99-106.

Students for Sensible Drug Policy (2013). *Florida Injection Drug Use Statistics and Resources.* Retrieved from http://ssdp.org/florida-injection-drug-use-statistics-and-resources/#_edn1

Tripathy, J. P. (2013). Secondary data analysis: Ethical issues and challenges. *Iranian Journal of Public Health*, *42*(12), 1478.

Trochim, M., Donnelly, P., & Arora, K. (2016). *Research methods: The essential knowledge base (2nd ed.)*. Boston, MA: Cengage Learning

Wisniewski, A. B., Apel, S., Selnes, O. A., Nath, A., McArthur, J. C., & Dobs, A. S. (2005). Depressive symptoms, quality of life, and neuropsychological performance in HIV/AIDS: the impact of gender and injection drug use. *Journal of neurovirology*, *11*(2), 138-143.

Daniel Diyaolu, The Chicago School of Professional Psychology. Email at: danieldiyaolu@gmail.com.
Copyright 2019 by the *Florida Public Health Review*.