



Reimagining an AIDS free generation: Examining youth and young adults' personal agency and its association with HIV testing

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ABSTRACT

Exploring youth and young adult's agency may be a way to increase HIV testing and help end the HIV epidemic. We used data from the National Survey of Teens and Young Adults (15–24) on HIV/AIDS ($N = 1,437$). Data were collected from September 21–October 1, 2012. The sample included 748 girls and 689 boys; and the mean age is 20 years (SD: 3.02). Youth and young adults completed a 40-question survey on attitudes and knowledge about HIV. Using a multivariable logistic regression analysis, study findings suggest that focusing on protective health behaviors like the role youth can play in ending the epidemic and hearing about an AIDS-free generation were both associated with an increase in HIV testing. Our study finds that enhancing the role and influence of personal agency can inform HIV prevention and intervention programs that are specific to youth.

1. Introduction

Youth and young adults are at an elevated risk for contracting HIV due, in part, to engaging in sexual risk-taking behaviors that increase their likelihood of contracting the virus (CDC, 2017; Liu et al., 2015). According to the Centers for Disease Control [(CDC), 2017] youth and young adults ages, 13 to 24 years made up 21% of all new HIV cases. In examining gender differences, both males and females (13 to 24) made up approximately 15% of all new HIV infections in 2018 (CDC, 2017). Among racial differences in the United States, Black youth remains disproportionately burdened by HIV (Boyd et al., 2018, 2020b; CDC, 2017). Black youth are eight times more likely than White youth, and two times more likely than their Latinx peers, to contract HIV (CDC, 2018; Kaiser Family Foundation, 2019). As youth are transitioning from the interdependence of childhood toward the autonomy of adulthood at a time when they also beginning to explore their sexuality, putting them at elevated risk of contracting HIV (Mahat et al., 2016; Ryan & Deci, 2000). Yet, a paucity of literature examines the role between personal agency and its impact on HIV testing among youth and young adults (Mahat et al., 2016; Dacus et al., 2018).

1.1. Perceptions of HIV risk

Youth and young adults continue to engage in a range of sexual risk-taking behaviors, despite enormous efforts to increase their awareness of high-risk HIV behaviors and get them to adopt lower-risk behaviors (Garipey et al., 2018; Li et al., 2019; Sutton et al., 2011). Awareness and educational campaigns targeting all youth have been ineffective in reducing sexual risk-taking behaviors, particularly since there is a lack of congruence between knowledge and perception (Li et al., 2019); additionally, youth generally experience a sense of invincibility that is consistent with optimistic bias commonly found among this age group (Ndugwa Kabwama, & Berg-Beckhoff, 2015). Black youth report earlier sexual engagement and higher rates of sexual activity than their peers (Kann et al., 2018; Lindberg et al., 2019; Liu et al., 2015). Additionally, Black males are more likely than other minority youth to practice inconsistent and/or incorrect condom utilization during vaginal sex, interact with multiple sequential or concurrent sexual partners, and father children at an early age (Córdova et al., 2016; Harris et al., 2019; Koku & Felsher, 2020).

1.2. HIV testing

There is promising, although limited, research identifying HIV

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testing as an effective prevention mechanism, yet HIV testing rates are generally low among all youth and young adults (Boyd et al., 2018; Moore et al., 2017). Van Handel et al. (2016) conducted separate logistic regression models for three subgroups—based on sexual activity frequency and the number of partners—to examine HIV testing trends among two nationally representative samples of high school students (National Youth Risk Behavior Survey) and young adults (Behavioral Risk Factor Surveillance System). They found that 22% of high school students and 33% of young adults reported that they have completed HIV testing. Moore et al. (2017) found that Black college students reported more positive attitudes towards HIV testing and preventative behaviors than their White peers. However, more recent analysis counters these findings. Boyd et al. (2018) examined data from the National Survey of Teens and Young Adults, which includes a nationally represented sample of 1,437 participants ages 15–24—and found that HIV testing rates are lower among Black youth who have increased knowledge about prevention efforts.

Over the last four decades, there have been several major scientific advances for both HIV negative and positive individuals in the United States. The development of effective antiretroviral therapy (ART), which allows people living with HIV, including youth and young adults to live a healthy and productive life. Taking ART as prescribed is essential for achieving and maintaining an undetectable viral load. With constant advancements of ART, the development of *Undetectable = Untransmittable* (or U = U), which signifies that individuals with HIV who receive ART and have achieved and maintained an undetectable viral load cannot sexually transmit the virus to others (Eisinger, Dieffenbach, & Fauci, 2019). U = U arguably the single most important communication for people living with HIV and is based on a solid foundation of scientific evidence (Rendina and Parsons, 2018). The development of pre-exposure prophylaxis (PrEP), which when taken daily, prevents HIV negative people from contracting HIV is another breakthrough intervention (Nelson et al., 2020; Wheeler et al., 2018). These developments have started to change how our society views HIV infection in our society. With these two biomedical interventions, we can help youth achieve an AIDS free generation. Promoting a zero risk of sexual transmission can be a strong messaging tool and help reduce HIV related stigma. These advancements, along with building personal agency, can empower youth to visualize an AIDS-free generation.

1.3. Personal agency

Youth who employ personal agency to exercise their autonomy are more likely to make decisions that maintain their sexual health and well-being (Closson et al., 2018; Pearson, 2006). Personal agency is integral to understanding how one employs one's own power to make and act upon intentional decisions based on available knowledge (Farber, 2018; Mannell & Jackson, 2014). The underpinning premise of personal agency rests upon the understanding of one's autonomy and subsequent capacity to make life choices independent of parental guidance and may include sexual health conversations, condom utilization, and abstaining from sexual intercourse (Boyd et al., 2020b; Craig et al., 2016; Farber, 2018). The personal agency could be critical in ending the HIV epidemic, particularly since youth are in a developmental stage punctuated by impulsivity and sexual experimentation and are often bereft of the ability to project resulting long-term risks (Baumeister et al., 2019; Colver & Dovey-Pearce, 2018; Mahat et al., 2016). Personal agency harnesses the youth's desire for independence by involving them as agents of their sexual health and well-being (Closson et al., 2018; Mannell & Jackson, 2014).

Investigating the relationship between youth's exercise of personal agency and HIV prevention may be fundamental to reducing the spread of the disease. Pearson (2006) analyzed data from Add Health—a nationally representative sample of 20,745 youth—and found that youth are more likely to utilize safer sexual practices, namely condom negotiation and abstinence when they have a greater sense of personal

agency. Though limited, these studies could provide insight into reducing the spread of HIV among youth and young adults.

2. Methods

Designed and implemented by public opinion researchers at the Kaiser Family Foundation, the National Survey of Teens and Young Adults on HIV/AIDS assessed the knowledge, stigma, beliefs, and comfortability of youth and young adults around HIV. This 40-question, web-based survey was conducted with 1,437 youth ages 15–24 from September 21, 2012, to October 1, 2012. Respondents of the survey were members of the knowledge panel, a randomly drawn, nationally representative panel of households. The members of the panel were screened for eligibility to participate by telephone using address-based sampling methods. Knowledge Networks surveys used a dual sampling approach that includes households with 1) listed phone numbers; 2) unlisted phone numbers; 3) telephone landlines; 4) non-telephone; and 5) only have cell-phone access, mail, and web-based surveys. Participants completed self-administered surveys. Households were provided with access to the internet and hardware if needed, which differs from other forms of internet research that only includes individuals who can obtain internet access. Due to the sensitive subject matter, parents of the participant's ages 15–17 were provided a summary of the survey and had to provide consent for their children to participate and youth had to ascent. Of the total number of youths contacted, 77% of parents allowed their children to participate. The data were weighted to balance the sample demographics to match national population estimates collected by the Census Bureau in August 2012 using the Current Population Survey. Adjustments for the language spoken at home (English vs. Spanish) are based on the Pew Hispanic Center Survey. All statistical tests of significance account for the effect of weighting.

2.1. Measures

The measures that follow are multiple item scales and single items. Alpha coefficients were obtained for scales with multiple items.

Dependent Variable

HIV Testing. HIV testing was based on answers to the following question: "Have you, yourself, ever been tested for HIV?" Responses were dummy coded to 0 (*no*) and 1 (*yes*).

Independent Variables

Perception of Risk. This 2-item scale ranging from 1 (*not serious at all*) to 4 (*very serious*) asked: "How serious, if at all, of a problem do you think HIV/AIDS is for people your age today?" and "How concerned, if at all, are you personally about HIV/AIDS?" Cronbach alpha is 0.95

AIDS-Free Generation. This single-item, 4-point response scale ranging from 1 (*nothing at all*) to 4 (*a lot*) asked: "How much, if anything, have you heard about the goal of an AIDS-free generation?" Higher scores indicate hearing more about an AIDS-free generation.

Role in Ending the Epidemic. This single-item, 4-point response scale ranging from 1 (*I don't want to play a role*) to 4 (*a big role*) asked: "How much of a role if any, do you think you personally can play in achieving the goal of an AIDS-free generation?" Higher scores indicate wanting to play a bigger role.

2.2. Demographic variables

Demographic variables in the study included self-reported age, race, sexual orientation, sexual intercourse, and gender. Age and income were continuous variables; gender was coded 0 (*male*) and 1 (*female*); race was coded as 1 = *White*, 2 = *Black*, 3 = *Hispanic*, 4 = *Other, Non-Hispanic*, 5 = *More than 2 Races, Non-Hispanic*; sexual orientation was coded as 1 = *heterosexual*, 2 = *gay*, 3 = *lesbian*, 4 = *bisexual*, 5 = *other*; and sexual intercourse was coded 0 (*no*) and 1 (*yes*).

2.3. Data analysis plan

Table 1 presents demographic information for all study variables. A series of multivariable logistic regression analyses were used to examine the effects of perceptions of risk, hearing about an AIDS-free generation, the role youth can play in achieving an AIDS-free generation, and demographic variables on HIV testing. Table 2 presents a multivariable logistic regression with all independent variables and covariates on HIV testing. Table 3 presents a multivariable logistic regression stratified by gender, with all independent variables and covariates. Table 4. Presents a multivariate analysis stratified by those who self-identified as male and by race, with all independent variables and all covariates except sexual orientation due to sample size. Table 5 consists of a multivariate analysis also stratified by self-identified female and race with all independent variables and covariates excluding sexual orientation. All analysis was done using STATA 15.

3. Results

3.1. Demographic characteristics

For the complete demographic characteristics of the sample, see Table 1. Youth ages ranged from 15 to 24 years old (mean age 20) and just over half of the sample was female (52%). Most self-identified as heterosexual (92%). The average income was between \$35,000 and \$39,000. Three-quarters (75%) reported not being tested for HIV in the past year. More than half (66%) perceived HIV to be a serious problem or of serious concern for themselves, and 67% reported wanting to play a small role in achieving an AIDS-free generation. Less than half of all youth and young adults reported not hearing about an AIDS-free generation.

3.2. Multivariable logistic regression

The overall model was statistically significant (Table 2). Our results revealed a significant association between youth wanting to play a role in ending the epidemic and HIV testing (OR:1.19; 95% CI: 1.02–1.43). A one-unit increase in wanting to play a role in ending the epidemic was associated with a 1.19 increase in odds of being tested for HIV while holding all other variables constant in the model. We also found a significant association between hearing about an AIDS-free generation and HIV testing. For every one-unit increase in hearing about an AIDS free generation, the likelihood of youth being tested for HIV increased by a factor of 1.25 (OR: 1.25; 95% CI:1.08–1.46). There was also a significant relationship between perceived risk and HIV testing (OR: 1.15; 95% CI: 1.05–1.27). Among racial and ethnic groups, Blacks (OR: 3.00; 95%

Table 1 Youth demographic information and characteristics (N = 1437).

Variables	Frequency	Percent
Gender		
Male	689	48.00%
Females	748	52.00%
Sexual Orientation		
Heterosexual	1308	92.37%
Gay	16	1.13%
Lesbian	13	1.00%
Bisexual	53	4.00%
Other	26	2.00%
HIV Testing		
Yes	345	24.00%
No	1,076	76.00%
	Mean (range)	SD
Age	20 (15 to 24)	3.02
Income	35,000 to 39,000	5.00
Role in AIDS-free generation	2.69 (1 to 4)	0.89
Heard of an AIDS-free generation	1.66 (1 to 4)	0.93
Perceptions of Risk	4.68 (1 to 7)	1.77

Table 2 Logistic Regression on HIV Testing (N = 1,349).

Variables	OR	SE	95% CI
HIV Testing			
Role in Ending Epidemic	1.19*	0.11	[1.002–1.43]
Heard about AIDS-free generation	1.25**	0.10	[1.08–1.46]
Perception of Risk	1.15**	0.06	[1.05–1.27]
Race			
White (Reference)			
Black	3.00***	0.58	[1.99–4.35]
Hispanic	1.66**	0.32	[1.13–2.43]
Other, Non-Hispanic	1.65**	0.63	[0.78–3.49]
More than 2 Races, Non-Hispanic	2.83**	1.07	[1.34–5.97]
Sexual Orientation			
Heterosexual (references)			
Gay	0.77	0.50	[0.21–2.79]
Bisexual	0.63*	0.43	[0.17–2.39]
Lesbian	2.12	0.0.72	[1.10–4.14]
Other	1.11	0.63	[0.35–3.43]
Gender			
Female (reference)			
Income	0.92***	0.01	[0.89–0.94]
Having sexual intercourse (Yes, reference)	0.09***	0.02	[0.06–0.13]

p < .05, p < .01, p < .001

Table 3 Multivariate Analysis stratified by gender on HIV Testing.

Variables	Males (N = 654)		Females (N = 708)	
	OR	95% CI	OR	95% CI
HIV Testing				
Yes				
No				
Perception of Risk	1.12	[0.96–1.31]	1.21**	[1.06–1.39]
Role in Ending the epidemic	1.38**	[1.04–1.84]	1.03	[0.80–1.31]
Hearing about AIDs Freegeneration	0.28**	[0.11–0.73]	1.35**	[1.08–1.66]
Races				
White (ref)				
Black	3.30***	[1.74–6.25]	2.11**	[1.22–3.66]
Other, Non-Hispanic	0.62	[0.13–2.97]	1.72	[0.64–4.63]
Hispanic	1.67	[0.94–2.95]	1.39	[0.59–3.24]
2 Race or More, Non-Hispanic	4.40*	[1.37–14.17]	2.33	[0.82–6.62]
Income	0.95*	[0.90–0.99]	0.91***	[0.87–0.95]
Age	1.16***	[1.05–1.26]	1.27***	[1.16–1.39]
Having sexual intercourse				
Yes(ref)	0.14***	[0.07–0.26]	0.16***	[0.09–0.29]
R ²	0.22		0.32	

p < .05*, p < .01**, p < .001***
*Sexual Orientation was not added to neither model to sample size issues

1.99–4.35), Hispanics (OR: 1.66; 95% CI: 1.13–2.43), and those who reported having more than 2 races non-Hispanic (OR: 2.83; 95%CI: 1.34–5.97) were all more likely to get tested than White youth and young adults. For gender, females were more likely to get tested than males (OR: 1.36; 95% 1.29–1.44). Those who identified as bisexual were less likely to get tested than heterosexuals (OR: 0.63; 95% 0.17–2.39), and those who reported yes to ever having sexual intercourse were less likely to get tested for HIV than those who did not (OR: 0.09; 95% 0.06–0.13). Youth and young adults with lower incomes were less likely to get tested for HIV (OR: 0.92; 0.89–0.94).

3.3. Multivariate logistic regression analysis by gender

Males and HIV testing. In examining gender differences (see Table 3), our results indicated a significant association between youth wanting to play a role in ending the epidemic and HIV testing (OR: 1.38; 95%CI: 1.04–1.84) that varied by gender.

Table 4
Multivariate Logistic regressions of HIV Testing by race and ethnicity and males.

Variables	White males (N = 360)		Black males (N = 101)		Latino males (N = 155)	
	OR	95% CI	OR	95% CI	OR	95% CI
HIV Testing						
Yes						
No						
Perception of Risk	1.23	[0.87–1.73]	1.30	[0.70–2.40]	1.62*	[1.05–2.50]
Role in AIDS free generation	2.08*	[1.15–3.76]	1.82	[0.55–6.03]	2.95**	[1.38–6.38]
Heard-AIDS Free generation	0.90	[0.51–1.61]	2.81*	[1.08–7.27]	0.75	[0.39–1.44]
Sexually Active	0.08	[0.02–0.29]	0.10*	[0.00–0.35]	0.25	[0.05–1.24]
Household Income	0.98	[0.89–1.08]	0.85**	[0.76–0.95]	1.01	[0.85–1.21]
Age	1.16	[0.94–1.43]	1.07	[0.88–1.33]	1.27*	[1.03–1.55]

$p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

Table 5
Multivariate Logistic regressions of HIV Testing by race and ethnicity and females.

Variables	White females (N = 330)		Black females (N = 162)		Latina females (N = 151)	
	OR	95% CI	OR	95% CI	OR	95% CI
HIV Testing						
Yes						
No						
Personal Perception of Risk	1.38*	[1.02–1.88]	0.96	[0.53–1.74]	0.72	[0.47–1.11]
Role in AIDS free generation	0.88	[0.53–1.47]	0.82	[0.36–1.84]	1.78	[0.80–3.95]
Heard of AIDS free generation	1.20	[0.71–2.01]	1.41	[0.81–2.46]	3.48***	[1.89–6.47]
Household income	0.87**	[0.79–0.96]	0.85*	[0.74–0.98]	0.84	[0.76–1.01]
Age	1.21*	[1.02–1.46]	1.66***	[1.20–2.30]	1.57**	[1.16–2.13]
Sexually Active	0.21***	[0.03–0.43]	0.02	[0.00–0.11]	0.90***	[0.02–1.38]

$p < .05^*$, $p < .01^{**}$, $p < .001^{***}$

For every one-unit increase in wanting to play a role in achieving an AIDS-free generation, males were almost 1.38 times more likely to be tested for HIV while controlling for all other variables in the model (OR: 1.38; 95% CI: 1.04–1.84). The relationship between HIV testing and hearing more about an AIDS-free generation was also statistically significant, but not necessarily in the expected direction (OR: 0.28; 95% CI: 0.11–0.73). For every one-unit increase in hearing more about an AIDS-free generation, the likelihood of males being tested for HIV decreased by 72%. Black males (OR: 3.30; 95%CI: 1.74–6.25) and males who reported two or more races, non-Hispanic were more likely to get tested for HIV than White males. For every year older, males were almost 1.16 times more likely to get tested for HIV (OR: 1.16; 95%CI: 1.05–1.26). Those who reported a lower income were more likely to get tested (OR: 0.95; 95%CI: 0.90–0.99). Youth and young adult males who reported having sexual intercourse were less likely to get tested (OR: 0.14; 95%CI: 0.07–0.26).

Females and HIV testing. Our results revealed a significant relationship between personal perception of HIV risk and HIV testing (OR:1.21; 95% CI: 1.06–1.39). A one-unit increase in the perception of HIV risk was associated with 1.21 increased odds of being tested for HIV. For every one-unit increase in hearing about an AIDS-free generation, females were 1.35 times more likely to get tested for HIV (OR: 1.35; 95% CI: 1.08–1.66). Black females (OR: 2.11; 95%CI: 1.22–3.66) were more likely to get tested for HIV than White females. For every year older, females were 1.27 times more likely to get tested for HIV (OR: 1.27; 95% CI: 1.16–1.39). Those who reported a lower income were less likely to get tested (OR:0.91; 95%CI: 0.87–0.95). Youth and young adult females who reported having sexual intercourse were less likely to get tested (OR: 0.16; 95%CI: 0.09–0.29).

3.4. Multivariable logistic regression by race and male

3.4.1. Black males and HIV testing

In examining gender differences (see Table 5), our results indicated a significant association between the relationship between HIV testing and hearing more about an AIDS-free generation. For every one-unit

increase in hearing more about an AIDS-free generation, the likelihood of males being tested for HIV increase by almost 3 times (OR: 2.81; 95% CI [1.08, 7.27]). Black males who reported having sexual intercourse were less likely to get tested (OR: 0.10; 95% CI [0.00, 0.35]). Black males who lived in households with lower incomes were less likely to get tested for HIV in comparison to those with higher incomes (OR: 0.85; 95% CI [0.76, 0.95]).

3.4.2. Latinx males and HIV testing

Our results indicated a significant association between youth wanting to play a role in ending the epidemic and HIV testing. For every one-unit increase in wanting to play a role in achieving an AIDS-free generation, they were almost 2.95 times more likely to be tested for HIV while controlling for all other variables in the model (OR: 2.95; 95% CI [1.38, 6.38]). The relationship between HIV testing and the perception of risk was also statistically significant (OR: 1.62; 95% CI [1.05, 2.50]). For every year older, males were almost 1.27 times more likely to get tested for HIV (OR: 1.27; 95% CI [1.03, 1.55]).

3.4.3. White males and HIV testing

Our results indicated a significant association between youth wanting to play a role in ending the epidemic and HIV testing. For every one-unit increase in wanting to play a role in achieving an AIDS-free generation, they were 2.01 times more likely to be tested for HIV while controlling for all other variables in the model (OR: 2.08; 95% CI [1.15, 3.76]).

3.5. Multivariable logistic regression stratified by race and females

3.5.1. Black females and HIV testing

In examining gender differences by race and gender (see Table 5), our results indicate a positive relationship between HIV testing and age for Black girls. For every year older, Black females were 1.66 times more likely to get tested for HIV, than younger females (OR: 1.66; 95% CI [1.20, 2.30]). Black girls who come from households with low incomes were less likely to get tested for HIV when compared to those with

higher incomes (OR: 0.88; 95% CI [0.76, 1.01]).

3.5.2. Latinx females and HIV testing

Our results indicated a significant and positive relationship between HIV testing and hearing more about an AIDS-free generation (OR: 3.48; 95% CI [1.89, 6.47]). Latinx girls who had heard about an AIDS-free generation were 3.48 times more likely to get tested for HIV. For every year older, Latinx females were almost 1.57 times more likely to get tested for HIV than younger females (OR: 1.57; 95% CI [1.16–2.13]). Those who reported a lower income were more likely to get tested than those who reported a higher household income (OR: 0.90; 95% CI [0.38, 1.38]). Latinx female youth and young adult males who reported having sexual intercourse were less likely to get tested (OR: 0.0914; 95% CI [0.027, 0.3826]).

3.5.3. White females and HIV testing

Our results indicate a positive relationship between HIV testing and the perception of risk was statistically significant. White females who perceived themselves to be at high risk were more likely to get tested for HIV than those who had a low perception of their risk (OR: 1.38; 95% CI [1.02, 1.88]). For every year older, White females were almost 1.21 times more likely to get tested for HIV than younger females (OR: 1.21; 95% CI [1.02, 1.44]). White females who reported having sexual intercourse were less likely to get tested for HIV (OR: 0.21; 95% CI [0.03, 0.43]). Girls who come from households with lower incomes were less likely to get tested for HIV when compared to those with higher incomes (OR: 0.87; 95% CI [0.79, 0.96]).

4. Discussion

This study investigated factors associated with the relationship between personal agency and other factors and their impact on HIV testing among youth and young adults. A national dataset was analyzed to investigate these factors. Major findings indicated a significant relationship between perceived risk of HIV transmission and HIV testing, given that more than half the sample perceived HIV to be a serious problem. Previous studies suggest that personal agency is a critical resource for youth in their sexual decision-making (Pearson, 2006). Further, more than half (66%) of Black youth perceived HIV to be a serious problem or of concern, and 67% reported wanting to play a small role in achieving an AIDS-free generation. This suggests that some Black youth are both aware of and have a desire to achieve an AIDS-free generation, so their personal agency reflects some level of self-empowerment and self-determination, as well as the likelihood that they are involved in enacting their beliefs (Mannell & Jackson, 2014). Thus, their sense of control over their sexual experiences and interactions suggest they are more likely to employ proactive preventative strategies to stay healthy, like HIV testing (Closson et al., 2018; Dacus et al., 2018). This finding expands knowledge about the critical role and influence of personal agency on HIV testing among Black youth, which can inform HIV prevention and intervention programs that are specific to these understudied populations who are burdened by HIV.

The multivariate analyses note that the model was statistically significant in explaining the associations between the study variables and HIV testing. We noted significant associations between hearing about an AIDS-free generation and HIV testing, which was noteworthy since 75% of the sample reported not having been tested in the last year. This study finding for HIV testing rates is consistent, as one study about parent support and Black males suggests that 76% of their sample reported that they had never been tested for HIV/AIDS (Boyd et al., 2020b). Females in this study sample were more likely to get HIV testing than males, which is consistent with past research (Gombe & Midzi, 2018; Reif et al., 2016; Swenson et al., 2015). Also, youth of color were more likely to get tested for HIV than their White counterparts. When we stratified our multivariate analysis by race and ethnicity, we noted gender differences suggesting a positive relationship between HIV testing and age for Black

females. Older females were more likely to get tested for HIV than younger females.

Youth who identified as bisexual (8% of the sample) were less likely to get tested for HIV than youth who identified as heterosexual. One reason for this could be due to the effect of social desirability and fear of stigma and discrimination, which have been identified as barriers to testing (Balaji et al., 2018; Lantos et al., 2019). This finding did not hold in the multivariate analyses when we stratified it by race. Additional research is needed in this area, especially with bisexual youth of color.

Also, youth and young adults with lower incomes were less likely to get tested for HIV, except for Latinx males who reported living in a household with higher incomes. These findings could be the product of a lack of health insurance coverage to ensure access to sexual health services. This finding warrants further investigation given that the majority of the sample reported lower incomes and some scholars note that high rates of HIV/AIDS in some minority communities are associated with structural factors like poverty, crime, and incarceration (Aidala et al., 2005; Bowleg et al., 2013; Boyd et al., 2018; Denning et al., 2011; Thomas et al., 2008). Yet, Latinx males in this study sample may have access to health insurance that provides coverage allowing them to access quality healthcare services as well as information on sexual health, and HIV/STI prevention services and other resources (Boyd et al., 2018, 2020b). This finding is also consistent with previous research indicating that youth and young adults who have higher socioeconomic statuses are slightly more likely to be tested for HIV (Adebayo & Gonzalez-Guarda, 2017; Boyd et al., 2018, 2020a; Gwadz et al., 2016; Probst et al., 2017). Further, Latinx males reported having higher income and less than one-third of the sample had been tested, even though more females than males had been tested for HIV.

Youth who heard about an AIDS-free generation and wanted to play a role in ending the HIV epidemic were more likely of being tested for HIV. Male youth who wanted to play a role in achieving an AIDS-free generation was much more likely to be tested for HIV, while there was an opposite and inverse relationship between them having heard about an AIDS-free generation and the likelihood of testing. The opposite was true for Black and White females who were more likely to be tested for HIV if they either heard of an AIDS-free generation or wanted to achieve one. This is inconsistent with Pearson's (2006) past research findings noting that personal control and self-efficacy are often more important for some females and all males in predicting contraceptive risk. Latinx females and Black, White, and Latinx males, in particular, were more likely to be tested because of the possibility of an AIDS-free generation. This implies that the beliefs of some youth, including Black males, had a favorable impact on their preventive health behavior, which is key to improving and maintaining their overall health and well-being. Moreover, some scholars note that some Black youth and young adults who have been marginalized may have a sense of advocacy and commitment to promoting an AIDS-free society that could be used to promote personal agency to bolster preventive sexual health behaviors (Boyd et al., 2020c). Of note, Black females endorsed no significant relationship regarding HIV testing and an AIDS-free generation. This could be connected with the structural factors associated with HIV in Black communities in general, which promotes advocacy for increased approaches to prevention and intervention (Gupta et al., 2008; Sumartojo, 2000; Sumartojo et al., 2000). Consequently, even if youth feel they can satisfy their desire or role in achieving an AIDS-free generation, there may be structural and societal forces that hinder their ability to do so. Further, this indicates that there may be an even greater need to invest in personal agency among Black youth to promote HIV prevention and intervention, and subsequently reduce transmission rates.

5. Limitations

The results of our study should be interpreted considering several limitations. First, we employed a cross-sectional study design using secondary analysis of national data that has been collected from the

general population, which limits our ability to make causal or temporal inferences. Second, this is primarily an exploratory study, and several of our findings used single item self-reported measures. Although the analyses yielded several significant findings, more robust measures would have to be developed when replicating and triangulating these findings. Third, structural and societal factors like poverty, intersectional stigma, incarceration, and discrimination may have a dramatic influence on HIV testing for Black males and youth and young adults from lower-income backgrounds. There is noted variance with female youth and young adults who were more likely to get tested if they heard about an AIDS-free generation. Future research with this population should continue to include different contextual (those contributing to personal agency like advocacy) and structural (poverty, including proxy variables like health insurance and/or Medicaid) factors that may be related directly to risk perceptions of transmitting HIV to improve testing outcomes.

6. Conclusion

Despite the study's limitations, our findings provide solid information on the context of various factors and their association with HIV testing to identify modifiable factors that can support the development of interventions addressing HIV-related risks for youth and young adults. Also, the study enhances our understanding of youth's beliefs about having an AIDS-free generation, as well as their ability to assist with achieving one, especially for females. Our study findings inform the literature on youth and young adults in the general population and potential mechanisms for sexual health promotion by utilizing a personal agency lens and demonstrating that beliefs in promoting an AIDS-free generation could positively impact HIV testing behavior.

Given the low testing rates in this and other studies with youth and young adults, especially Blacks who are at higher risk of HIV transmission, future research should include qualitative or mixed methods to identify some of the contextual themes that may serve as barriers or facilitators to HIV testing. In addition, future research should explore the structural, systemic, and societal factors that influence sexual health behaviors, including protective factors like personal agency that impact the likelihood of engaging in positive sexual health behaviors.

By examining factors that contribute to the likelihood of youth and young adults' participation in HIV testing, we have identified significant factors that play powerful roles in decision-making. The study findings also indicate a striking relationship, suggesting that youth in this study sample are seriously concerned about HIV and possess the personal agency needed to wage a war against this epidemic. Consequently, interventions need to comprise an individual- and structural-level focus to incorporate approaches that will tap into existing belief systems that are connected to improving society in terms of HIV eradication, while also recognizing structural and systemic limitations that could hinder engagement in sexual health and wellness activities. This is of particular concern for youth and young adults with limited social and financial capital, or more marginalized circumstances like exposure to violence and histories of trauma, homelessness, or arrest (detainment or incarceration) (Quinn, 2018). Community-based health and social services agencies need to provide programming based on the perceptions and beliefs of youth and young adults coupled with efforts to increase access to services to improve their health and well-being.

CRedit authorship contribution statement

Donte T. Boyd: Conceptualization, Methodology, Formal analysis, Writing - original draft, Conceptualization. **Bernadine Waller:** Writing - review & editing, Conceptualization. **Camille R. Quinn:** Writing - review & editing, Conceptualization.

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