AN ONLINE INVESTIGATION OF THE HIV/AIDS TRANSMISSION PREVENTION STRATEGIES OF SEXUALLY ACTIVE YOUNG ADULTS LIVING IN THE ONGOING ERA OF HIV/AIDS

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This study analyzed empowerment profiles of a diverse online convenience sample of young adults for engaging in HIV risk reduction behaviors. The Condom Use and Sexual Behavioral Empowerment Scale (CUSBES-4, Cronbach’s Alpha .847) proved reliable in capturing empowerment profiles. The CUSBES-4 is grounded in four theories (self-efficacy, stages of change, social support, role models) and assesses four HIV risk reduction behaviors. The research diffused the innovation of an online survey associated with a website providing e-health, including an invitation to co-create website content with the researcher. The study sample (N=201) of heterosexually active young adults (18-25 years) were mostly students (63.2%), white (40.8%), Asian (20.9%), Latino (18.4%), and Black (10.4%)—while using the Internet to access health information (53.2%). Most had steady sexual partners (71.6%), yet reported main partner sexual concurrency (30.3%); other partner sexual concurrency (28.4%); and personal sexual concurrency (24.4%). Backward stepwise regression analysis found not having a main sex partner (B = -.504, SE = .162, p < .01), having more access to devices for the Internet (B = .150, SE = .162, p < .05), a higher score for Empowerment Self-Efficacy (B = .425, SE = .071, p < .001), a higher score for Empowerment Social Support (B = .360, SE = .130, p < .01), and a higher score for Empowerment Role Models (B = .221, SE = .084, p < .01) predicted being in a higher stage of change for engaging in the four HIV risk reduction behaviors; this model accounted for 32.6% of the dependent variable’s variance. Qualitative data highlighted the selection of steady partners and condom use as ways of coping in the era of HIV, as noteworthy emergent themes. Further, findings demonstrated that the ways of coping in the era of HIV and sexual behavior of diverse young adults are influenced by various contextual factors that merit consideration when developing HIV sexual risk reduction e-health interventions.

Keywords: HIV and young adults, HIV prevention, e-health.

Introduction

There is a need for interventions that can address the risks faced by contemporary diverse young adults who are sexually active in the ongoing era of HIV/AIDS. Data suggests that such young adults may not have received HIV/AIDS during their schooling as adolescents (CDC, 2012b). While research has investigated the impact of HIV on the young adult population as well as factors related to the sexual risk taking behaviors of young adults, there is an insufficient amount of evidence-based interventions addressing these multiple factors (Oshri, Tubman & Burnette, 2012; Rice, Tulbert, Cederbaum, Adhikari, & Milburn, 2012).
It has been suggested that obtaining the empowerment profiles of young adults that provide information on their stage of change, self-efficacy, access to social support, and access to role models for engaging in sexual risk reduction behaviors may provide valuable information for use in designing and tailoring interventions to address sexual risk behavior (King, 2012). There may be a role for e-health on HIV/AIDS and sexual risk behavior that is designed and tailored in light of the category of consumer and their characteristics, including social and cultural factors—while also considering the goals of ensuring equity in health, social justice, and access for all (Misra & Wallace, 2012).

Contemporary diverse young adults who are sexually active have grown up with Web 2.0 which has allowed them to enjoy social networking tools, media sharing, user generated content, instant updates, and online connections between people (Misra & Wallace, 2012). Misra and Wallace (2012) noted how the next public health revolution will involve social networks—with well-designed e-health messages that can play a crucial role in achieving the goals of health equity and overcoming disparities in health. Furthermore, according to Misra and Wallace (2012):

All of these Web 2.0 technologies are blurring the lines between the traditional producers of healthcare information and consumers of that knowledge. The modern day consumers of that information are increasingly taking part in co-producing the healthcare information that they consume. Since the Web 2.0 environment is a very social space where the user generates content, it can provide patients and the general public with access to huge amounts of information about healthcare. (p. 27)

Health educators may need to create e-health that is tailored and designed for contemporary diverse young adults who are sexually active in the ongoing era of HIV/AIDS. Meanwhile, consumers using Web 2.0 may help to co-create content. Thus, diverse sexually active young adults may be a potentially powerful resource in co-creating e-health content, including using social networking to disseminate information on adaptive coping strategies in the ongoing era of HIV/AIDS. They may be able to participate in the co-creation of e-health content that reduces engagement in sexually risky behavior and promotes the adoption of adaptive coping strategies.

Sexual risk behavior among young adults is a national public health concern. The Centers for Disease Control and Prevention reports the age group of 13 to 29 as having the largest HIV infection incidence (CDC, 2009a). Among young adults, Blacks have the highest incidence of HIV infection and are followed by the Latino population (CDC, 2009a). Consequently, the Healthy People 2020 policy document includes adolescent health as a category and acknowledges how sexually transmitted infections, including HIV, are problems for this population (US Department of Health and Human Services, 2010). In the United States, the population aged 15-24 years accounts for only one quarter of the sexually active population yet they acquire close to half of the nineteen million new sexually transmitted infections diagnosed each year (Chin et al., 2012). This is of grave concern due to the increase risk that STIs pose for acquiring HIV.

The estimated financial burden of the HIV/AIDS epidemic in the United States is $36.4 billion (Hutchinson et al., 2006). Although whites report higher direct medical care cost, minority races/ethnicities demonstrate higher productivity loss due to HIV related illness, disability and premature death (Hutchinson et al., 2006). Due to the absence of a cure for HIV there is an ethical responsibility for the health sector to implement tailored behavioral interventions that will eliminate health disparities in HIV.

The HIV epidemic among the Black/African American and Latino population reflects the longstanding racial and health disparity that is salient in the United States. Approximately 75% of HIV infected youths represents a racial or ethnic minority group (Futterman, 2005). Young adults are influenced by various social factors that create myriad levels of causation for HIV infection (DiClemente, Salazar & Crosby, 2007). HIV prevention strategies must go beyond focusing on individual level risk factors. Such strategies must address the multiple factors (proximal and distal) that influence the sexual behavior of young adults.

In the United States, the young adult population is the least insured group (Futterman, 2005). Lack of insurance translates into inadequate health care and support. A certain level of complacency with the HIV/AIDS epidemic is observed in the United States. However, the HIV/AIDS epidemic can now claim
the title of being the most horrible epidemic that humans have known (Futterman, 2005). A significant amount of young people in the United States who are HIV positive are unaware of their status and are not in treatment (Futterman, 2005). Therefore, in the absence of an HIV cure safer sex practices are warranted among youth.

**Statement of the Problem**

The problem that this study addresses is the need for tailored HIV prevention messages for contemporary diverse sexually active young adults, within the ongoing era of HIV/AIDS. Such young adults need information on adaptive coping strategies to avoid HIV transmission, while also being potential co-creators of e-health that identifies these strategies.

There has been a national decrease in the number of youth who report having ever been taught in school about HIV/AIDS (CDC, 2012b). Lack of information and strategies to address the HIV epidemic among youth can result in the adoption of maladaptive coping strategies to deal with the reality of HIV. Due to the high incidence of HIV infection in the young adult population, effective HIV preventive strategies must be made available for this population. For young adults, there are various factors affecting their susceptibility to HIV infection. Such elements entail biology, socio-behavioral variables, as well as socioeconomic factors (Fetter, 2005; DiClemente, Salazar & Crosby, 2007).

However, there are insufficient evidence-based interventions that address the numerous factors placing diverse young adults at risk for HIV infection. It is imperative that HIV interventions for young adults acknowledge the multiple priorities competing with HIV prevention in the lives of young adults, while seeking to promote long-term preventive behavioral strategies, such as instilling intentions to use condoms (DiClemente, Salazar, & Crosby, 2007). Moreover, tailoring HIV interventions to the needs of the young adult population includes ensuring that their specific risks are being addressed within the ongoing era of HIV/AIDS—including the reality that there may possibly be those within their social circle who were born with HIV, and have the potential to transmit HIV at the time of their sexual debut, while others in their social circle may have already acquired HIV.

Meanwhile, diverse sexually active young adults who have also grown up in the era of the Web 2.0 may be able to play a role in co-creating e-health along with the present study’s health educator/researcher; this includes the use of social networking and the exchange of information on a new e-health website created and monitored by the researcher (Misra& Wallace, 2012). Such e-health may help to address the problem of needing to find ways to provide appropriately tailored HIV prevention interventions for diverse contemporary sexually active young adults—including by having young adults co-create the e-health content.

**Purpose and Objectives**

The current study investigated the extent to which contemporary diverse sexually active young adults are coping adaptively in the ongoing era of HIV/AIDS and adopting preventive strategies for HIV/AIDS transmission—whether they are HIV seronegative orseropositive. The study assessed the degree of engagement in protective sexual behavior among a convenience sample of young adults (e.g. condom use, condom negotiation, refusal of sex without a condom, etc.…), and elicited their adaptive coping strategies for the prevention of HIV transmission in the ongoing era of HIV/AIDS.

In addition to participants having completed an online survey hosted at the study website, www.HowYoungAdultsCopeInHIVEra.org/, the study provided a new website created by the researcher that delivered e-health tailored for the population of contemporary diverse sexually active young adults. This included the young adults co-creating with a health educator (i.e. the researcher) the content of the e-health available on the new website via the sharing of their adaptive coping strategies to prevent HIV transmission. This is consistent with Web 2.0 technology and the common website feature of providing an
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opportunity for conversation and social exchange among young people, as they effectively co-create new e-health content (Misra& Wallace, 2012). More specifically, the co-creation of new e-health content will occur as visitors to the site utilize the following questions as a springboard for their online conversation and social exchange:

As a sexually active young adult, how do you cope in the ongoing era of HIV/AIDS? For example, how do you cope with the reality that there are young adults who are HIV positive (i.e. born HIV positive or acquired HIV) and may be in your social circle? Do you use any strategies to prevent HIV transmission? Are you doing anything that you feel “works” or has been successful in preventing the transmission of HIV?

The purpose of these questions was to promote conversation and social networking among sexually active young adults that may result in the sharing of adaptive coping strategies in the ongoing era of HIV/AIDS. The results included the co-creation of valuable e-health that is generated by: (1) the researcher/health educator creating and monitoring the new website as a source of valuable HIV prevention information and resources; and, (2) the visitors to the new website sharing their adaptive coping strategies.

Given that the study subjects represent a generation that is actively involved in online social networking and conversation, the intent was to provide a specific platform dedicated to a focus on adaptive coping strategies, or what seems to “work” in preventing HIV transmission. Moreover, it is hoped that the opportunity to engage in social networking at the site www.HowYoungAdultsCopeInHIVEra.org/ will lead to young adults exploring other parts of the website created by the researcher/health educator—i.e. a website devoted to serving as a warehouse for information on HIV/AIDS prevention that is tailored for diverse young adults.

Thus, in exchange for volunteering to participate in the online survey, participants gained access to what may be an ongoing source of e-health or health education on HIV prevention strategies tailored for this population. The intent was to offer ongoing access to a web-based health education intervention in exchange for completing the online survey. Thus, the conversation generated through social interaction was not thoroughly analyzed for emergent themes and content; this is because the key questions offered to stimulate social interaction were also formally asked in the qualitative portion of the study and were thoroughly analyzed for emergent themes, given the confidential and anonymous responses provided within the online survey. However, the conversation generated through social interaction was sufficiently observed to affirm that visitors to the site were constructively co-creating with the researcher/health educator meaningful e-health content on the topic of preventing HIV transmission through the use of adaptive coping strategies in the ongoing era of HIV/AIDS.

It is anticipated that the information obtained in this study will be of value in guiding the future development of e-health that delivers tailored HIV behavioral interventions for young adults—whether they are HIV seronegative or seropositive.

Review of the Literature

The World Health Organization reports 40% of all new HIV infections worldwide are among young adults—ages 15 to 24 years of age (WHO, 2011). In the United States, it is estimated that 1 in 4 (26%) of all new HIV infections occur in young adults ages 13 to 24 years (CDC, 2012c). Compared to white youth (20%) the African American population (60%) and Latino population (20%) experience a higher burden of HIV infection rates (CDC, 2012c). Such disproportionate rates reflect the salient health disparity experienced by racial minorities in the United States. There is also a low level of HIV testing among youth. National data reports that 60% of HIV positive youth are unaware of their seropositive status (CDC, 2012c). This results in many youth unknowingly transmitting HIV to others.

A significant number of young adults receive HIV testing late in the course of infection (Morris et al., 2006). This puts youth at risk for a higher level of HIV related morbidities and early death. Consequently, such incidents have strong ramifications to the economic viability of the United States.
The age group 18 to 25 is part of the economic productive group. However, the continued increase of HIV rates in this population will threaten the current and future labor force of the United States. This is currently being observed in sub-Saharan African countries where the high HIV/AIDS prevalence in the economic productive population is causing a negative impact in labor productivity (Thurlow, Gow, & George, 2009). Therefore it is imperative to develop evidential interventions that speak to the needs of young adults.

For young adults the risk of HIV infection begins when they become sexually active (CDC, 2012c). In the United States, the population aged 15-24 years accounts for only one quarter of the sexually active population yet they acquire close to half of the nineteen million new sexually transmitted infections (STIs) diagnosed each year (Chin et al., 2012). Moreover, it has been observed that for the last thirty years when compared to other ethnic/racial groups, African American youth have had the highest prevalence in engaging in sexual behaviors that contribute to pregnancies, and sexually transmitted infections (Doswell, Braxter, Cha, & Kim, 2011, p.45). Research has established that the presence of STIs increases HIV risk two to fivefold (Oni, 2005). Such information demonstrates the vulnerability to HIV incurred by youth, especially African American youth.

National data indicate that 47% of U.S. high school students are sexually active (CDC, 2012d). From this national sample 34% report having sexual intercourse with at least one person within a three-month period and 40% did not use a condom during their last sexual encounter (CDC, 2012d). Likewise, engaging in alcohol or substance use increases the HIV risk in young adults (Johnson et al., 2011). National data show that 22% of high school students drank alcohol or used drugs before last sexual intercourse (CDC, 2012d). DiClemente et al. (2008c) noted that HIV risk taking behavior “seems to cluster with other risk behaviors” (p.599) such as substance or alcohol use. Moreover, HIV knowledge has been shown to be instrumental in the reduction of HIV transmission however, 16% of high school students report never being taught in school about AIDS or HIV infection (CDC, 2012d). This results in a lack of sound HIV prevention information among young adults who are sexually active.

It is also noted that the main mode of HIV infection for the 13-15 year age group is perinatal transmission (Rangel et al., 2006). This exposed cohort will eventually age and contribute to the increasing proportion of HIV cases among young adults. Subsequently, research has demonstrated that a significant number of HIV positive youth engage in unprotected sexual intercourse and substance use (Lightfoot et al., 2005b). In a longitudinal study by Wiener, Haven, and Wood (2007) of HIV positive adolescents, it was reported that HIV positive youth “are sexually active” (p. 475) and have an insufficient amount of knowledge of “sexual transmission risk behaviors” (p. 475). In addition, Wiener et al. (2007) concluded that due to most HIV positive adolescents and young adults acquiring HIV “perinatally or early in life” (p.477), the topic of “partner notification was not a relevant issue at diagnosis” (p.477). This results in HIV positive youth unable to discuss their diagnosis or engage in condom use negotiation with their partner(s) (Wiener, Haven & Wood, 2007, p. 477). Such an issue is critical due to the “alarming public health implications of the transmission of multi-drug resistant virus by youth that are heavily-treatment-experienced” (Wiener et al., 2007, p.477). Unfortunately the number of sexual risk reduction studies that include adolescents that are HIV positive is limited (Johnson, Scott-Sheldon, Huedo-Medina & Carey, 2011). Therefore, it is crucial to include these exposed cohorts in the development of effective strategies to prevent HIV transmission.

Factors Influencing the Sexual Behavior of Young Adults

Bandura (1990d) asserted that, “interpersonal, sociocultural, religious, and economic factors operate as constraints on self-protective behaviors” (p.15). The sexual behavior of young adults is influenced by various social factors that create myriad levels of causation for HIV infection (DiClemente, Salazar & Crosby, 2007). HIV/AIDS stigma not only creates barriers for HIV testing, it is correlated with inaccurately perceiving one’s HIV risk, and not partaking in HIV prevention programs (Darrow, Montanea, & Gladwin, 2009).
Stigma. HIV/AIDS related stigma is highly concentrated among those with lower levels of education. Fullilove (2001) noted that HIV stigma not only creates “psychological harm to those who are its target” (p.3) it also hinders HIV prevention messages “to those who are steeped in this collective denial” (p.3).

This has strong implications for efforts to eliminate racial and ethnic HIV disparity. Furthermore, despite the negative impact that HIV/AIDS related stigma has on HIV prevention, there is an insufficient amount of support for interventions that mitigate these effects. It is noted that interventions to effectively address AIDS related stigma must be “multifaceted and multilevel” (Darrow et al., 2009, p.1186). However, the majority of federal funding for HIV prevention has been spent on surveillance, support counseling and testing programs, which although important, is considered the “least cost-effective method of preventing HIV” (Darrow et al., 2009, p.1186). Such actions have left insufficient funding and support for HIV/AIDS related stigma interventions in high-prevalence and at-risk populations.

Gender-based Violence. Wingwood et al. (2006) affirmed that gender-based violence could have a direct or indirect influence in the sexual risk taking behavior of young females (p.1085). Young women who experience gender-based violence may feel disempowered in negotiating safer sex practices, that indirectly predisposes them to HIV risk (Wingwood et al., 2006). Moreover, victims of gender-based violence often face coercive sex with a potentially HIV positive partner (Wingwood et al., 2006). The prevalence of gender-based violence among young adults is reported to be high. However, when compared to their white and Latino counterparts the prevalence of gender-based violence is highest among African American females, 4.9, 0.6, and 0.7 per 1000, respectively (Wingwood et al., 2006, p.1085).

Child Sexual and Physical Abuse Trauma. Research has also established the strong impact that childhood sexual abuse has on substance abuse and sexual risk taking behavior among young adults (Whetten et al., 2006). In a study sample of HIV positive individuals “approximately 1 in 4 respondents, regardless of gender, were sexually abused before the age of 13” (Whetten et al., 2006, p. 1028). Moreover, half of respondents reported being both sexually and physically abused (Whetten et al., 2006, p. 1028). This study also demonstrated a lack of difference by race, which may indicate that other social and structural factors must be considered when identifying at-risk groups (Whetten et al., 2006, p. 1029). Due to the strong association between sexual and physical trauma and HIV risk taking behaviors such as drug use, HIV prevention strategies must provide targeted interventions to victims of sexual and physical abuse.

Homelessness and Substance Use. Homeless youth are a largely hidden, transient and scattered population known to be at a significantly increased risk for a wide range of adverse health outcomes (e.g. HIV, STDs, mental health disorders, substance abuse) (Morris et al., 2006). Of considerable public health concern is the high prevalence of HIV infection (2.3%) that exceeds that of the general youth population (0.1%)(Morris et al., 2006). It is also observed that the prevalence (24%) of behavioral health problems in homeless youth ages 12-17 yrs. exceeds rates generally considered typical for youth aged 12-17 yrs., including the higher rates (14%) for youth living in poverty (Grant et al., 2007). Furthermore, homeless youth’s risks, service utilization, and outcomes are not uniform, but rather vary by geographic area, demographic characteristics and homelessness history (Hickler&Auerswald, 2009). Due to such variations in this hidden and underserved population interventions targeting this population must acknowledge the multiple levels of causation that cause this population to engage in high-risk sexual behavior. Solorio et al. (2008) reported that for homeless youth living with nonfamily members; drug use appeared to be the strongest predictors of engaging in sexual risk behaviors. Such findings require that interventions aimed at reducing sexual risk behaviors in homeless youth address both individual and social factors such as housing needs, drug use and social support.

Knowledge and Self-Efficacy for HIV Prevention. Cerwonka, Isbell, and Hansen (2000) noted that when analyzing the psychosocial factors influencing high-risk sexual behavior among youth, knowledge
is an important aspect of reducing high-risk sexual behavior among youth but it is not the main influence in their sexual behavior. Cerwonka and colleagues (2000) observed a sample of youth with a high level of HIV/AIDS transmission knowledge and a high level of HIV risk behavior. Cerwonka and colleagues (2000) asserted that such a finding indicates, “that while psychoeducational interventions promoting safe sex procedures are adequate for some young adults” (p. 148) they are not necessarily effective for young adults who are currently engaged in high-risk sexual behavior. In addition to knowledge issues such as self-efficacy, and peer norms seem to have a strong influence in the sexual behavior of young adults.

Wiener, Battles and Wood (2007) reported that among HIV positive youth confidence in condom use did not automatically translate into consistent condom use. Wiener et al. (2007) also noted that over one-third of the HIV positive youth in their study lacked the ability to discuss HIV prevention with their partner. Furthermore, Weiner et al. (2007) affirmed that the study population showed a decline over time in their “efficacy regarding one’s ability to refuse sex without a condom” (p.476) and 43% of the participants reported that once a person engages in sex without a condom it is difficult to “say no the next time” (p.476). In this longitudinal study Wiener et al. (2007) highlighted the importance of offering sexual risk reduction education to seronegative and seropositive youth “regardless of whether or not they are currently sexually active” (p. 476).

Outlaw, Naar-King, Janisse, Parsons and The Adolescent Trials Network for HIV/AIDS (2010) utilized the Transtheoretical Model framework to conduct a study investigating the cognitive factors correlated with condom use in youth living with HIV ages 16-24. In their study Outlaw et al. (2010) hypothesized that lower motivational readiness (i.e. low self-efficacy for condom use) would be correlated with higher rates of unprotected sexual acts in youth living with HIV. In addition, Outlaw and colleagues (2010) hypothesized that having lower social support for using condoms and higher levels of emotional distress would influence higher rates of unprotected sexual intercourse. In addition, Outlaw et al. (2010) predicted that having lower rates of substance use would be correlated with lower acts of unprotected sex.

In their findings Outlaw et al. (2010) reported that the social cognitive factors related with high use of condoms in youth living with HIV are higher motivational readiness and self-efficacy for safer sex. This finding supports the need for sexual risk reduction interventions to promote self-efficacy and motivational readiness as a strategy to address high-risk sexual behavior among youth. Outlaw et al. (2010) concluded that interventions that aim to increase level of motivation should consider providing social support for condom use and “increase self-efficacy, perhaps by increasing decisional balance” (p.10) through motivational interviewing.

Outlaw and colleagues (2010) offered motivational interviewing as a promising strategy that can increase the motivation and confidence of condom use in youth. Outlaw et al. (2010) also found an association with emotional distress and condom use. Understanding the emotional problems faced by youth may be instrumental in developing tailored interventions for this population. Outlaw and colleagues (2010) noted that, “interventions that focus on social networking and treatment of depression may help increase social support and reduce emotional distress for youth” (p. 10). However, no difference was found in the level of condom use between youth who reported substance use and those that did not. Outlaw and colleagues (2010) posited that this unaccounted difference might be due to the limited kind of substance (alcohol and marijuana) use reported by the participants in the study.

In previous studies demonstrating an association between substance use and sexual risk taking behavior among youth, various kinds of substances were analyzed (alcohol, marijuana, amphetamines, hallucinogens etc.) (Tapert, Aarons, Sedlar, & Brown, 2001; Hallfors, Iritani, Miller, & Bauer, 2007). Therefore additional studies are necessary to elucidate the relation between substance use and its impact on the high-risk sexual behavior of youth whether seronegative or seropositive.

Emotions and Coping Strategies. Outlaw et al. (2010) posited that emotions such as sensation seeking behavior be explored as a predictor of sexual risk behavior among youth. Sensation seeking is known to encompass thrill and adventure seeking experience and according to Kalichman and Rompa (2004) may serve as a motivation to engage in high-risk sexual behavior despite the increased risk for HIV infection.
Gullette and Lyons (2005) observed in a sample of college students that compared to their peers those with a high sensation-seeking trait regardless of gender, reported more sexual partners and “frequently had unprotected sex with someone of unknown HIV status” (p.57).

Hendershot, Stoner, George, and Norris (2007) analyzed a conceptual model that emphasized sexual sensation seeking, alcohol expectancies, and drinking before sex as strong indicators of HIV risk in young adults. The findings of this conceptual model indicated that sexual sensation seeking behavior directly and indirectly through alcohol expectancies and drinking prior to sexual activity influence HIV risk (Hendershot, Stoner, George, & Norris, 2007). Furthermore this model showed no difference in gender (Hendershot et al., 2007). Such findings indicate that while individual personalities are not amenable to change, focusing on risk taking characteristics as well as alcohol expectancies and drinking before sex may serve as a viable strategy to address HIV risk in young adults. Furthermore, Hendershot et al. (2007) affirmed that the findings of their study support the inclusion of “personality factors of theoretical relevance to sexuality” (p.370) such as sensation seeking and alcohol expectancies.

Raffaelli and Crockett (2003) noted that youth have various forms of coping with the potential risk of sexually transmitted infections and unplanned pregnancy. Some youth abstain from sexual intercourse, while others engage in unprotected sex with multiple partners, and others practice consistent condom use (Raffaelli & Crockett, 2003). Raffaelli and Crockett (2003) affirmed that many of the factors influencing the sexual risk taking behavior in youth are present prior to becoming sexually active. Raffaelli and Crockett (2003) posited that, “individuals enter adolescence with a set of personality dispositions and behavioral tendencies that influence their subsequent behavior” (p. 1036). Therefore many of the factors contributing to the sexual risk taking behavior during adolescence may be addressed during the earlier developmental periods (Raffaelli & Crockett, 2003).

Raffaelli and Crockett (2003) conducted a longitudinal study on a multiethnic sample examining the role of self-regulation and risk proneness as characteristics of sexual risk taking in youth. Risk proneness is considered being susceptible to potentially risky activities (Raffaelli and Crockett, 2003, p. 1036). Self-regulation is defined as the ability to regulate “emotions, attention and behavior” (p.1037). Research on the influence that self-regulation has on the sexual risk taking behavior of youth is still in its nascent stage (Raffaelli and Crockett, 2003; Lightfoot, 2012a). Raffaelli and Crockett (2003) claimed that parental involvement and positive peer norms in the lives of youth promote better self-regulation. The study’s findings indicate that self-regulation and risk proneness are not significantly correlated and were related with different “specific risk behaviors, suggesting that they reflect distinct psychological processes” (p. 1043). Raffaelli and Crockett (2003) indicate that self-regulation may not necessarily delay sexual intercourse however, it will “influence choices the adolescent makes after becoming sexually active” (p.1043). The study also implies that adolescents who are “poor self-regulators may be at increased risk” (p. 1043) for developing high-risk sexual behavior. However, further studies must be conducted to clearly establish the influence that self-regulation has on sexually active adolescents.

Raffaelli and Crockett (2003) also demonstrated that although risk proneness may influence sexual risk taking behavior, there are other contextual factors that have a stronger influence in the sexual risk taking behaviors of youth. Raffaelli and Crockett (2003) observed that peer norms and parental influence thwart the effects of risk proneness. Such findings support interventions that promote the development of self-regulation in children and adolescent, positive peer norms and better parent-child communication. Impulsivity among young adults has also been associated with high-risk sexual behavior (Kahn, Kaplowitz, Goodman & Emans, 2002). Impulsivity has been defined as acting without rational thinking (Kahn et al., 2002). To expound on the relationship that impulsivity has on the sexual risk taking behavior of youth, a study with a diverse sample of young adult females ages 12 to 24 years was conducted (Kahn et al., 2002). Findings from the study showed that impulsiveness was associated with sexual risk behaviors and history of Chlamydia infection (Kahn et al., 2002).

Lightfoot (2012) stated that most sexual risk reduction strategies for youth ascribe to a social cognitive framework that assumes a “rational and thoughtful response to relationships and sex” (p.665). Nonetheless due to the limited success of such interventions and the continuous rise of HIV infection in young adults a different framework is merited. Lightfoot (2012) asserted that due to youth being under a
developmental phase it is difficult for them to consistently generate rational and controlled thoughts about sex and relationships. Lightfoot (2012) proposed that emotional regulation skills be offered to youth as an additional strategy to reduce risk taking sexual behavior. Lightfoot (2012) noted that such a strategy has already proven to be successful in substance abusing youth. Furthermore, Lightfoot (2012) posited that emotional regulation can be offered as a complementary strategy to the already existing cognitive models and may address “underlying emotional systems in adolescents” (p.665) which may prove to be effective in reducing HIV-related behaviors. Lightfoot (2012) declared that the future inclusion of strategies that develop youth’s “skills in emotional awareness” (p.665) and promote the development of adaptive coping strategies may prove to be successful in reducing HIV related risk behaviors. Lightfoot (2012) affirmed that by youth learning “more adaptive ways to control or tolerate and express intense affect” (p. 665) they would reduce their high-risk behaviors.

**Relationship Context and Sexual Protective Strategies.** In a cross-sectional survey Hutchinson (2001) concluded that, “young heterosexual women employ a number of sexual protective strategies other than use of condoms to reduce their risk for HIV and STDs” (p. 430). The primary mode of HIV infection in adolescent females is through sexual intercourse (Hutchinson, 2001). Therefore, a better understanding of the sexual protective strategies employed by this population is warranted. Although abstinence is reported to be the only sexual protective strategy that provides complete protection against STIs and HIV as well as unplanned pregnancies youth are not always committed to this strategy (Jemmot, Jemmot, Fong, & Morales, 2010; Futterman, 2005). This is evident in the fact that half of all new HIV infections across the world today are from people who are 25 years old or younger (Oni, 2005, p.46).

Hutchinson (2001) noted that engaging in a mutually monogamous relationship has been offered as a second effective sexual protective strategy. However for monogamy to work two partners have to be mutually committed to monogamy and have tested negative for STIs and HIV by a health care professional (Hutchinson, 2001). It is observed that unlike abstinence and mutual monogamy with an uninfected partner, “condom use does not eliminate exposure nor does it provide 100% effective protection against HIV and all STDs” (Hutchinson, 2001, p.430). However, condoms do reduce the risk of exposure to various forms of infectious agents such as HIV (Hutchinson, 2001, p.430). Nonetheless, for condoms to be an effective sexual protective strategy they must be used consistently during every sexual intercourse (Jemmot, et al., 2010). For example, Hutchinson (2001) stated that condoms provide protection against “infection from partners who fail to disclose that they have an STD or HIV” (p. 431) as well as partners who are unaware they are infected with an STD or HIV.

Hutchinson (2001) affirmed that many youth regardless of how many sexual partners they have do not use condoms because “they do not view themselves as being at risk for HIV and STDs” (p. 431). Although many young females fail to discuss with their sexual partners their “sexual risk histories” (Hutchinson, 2001, p.431) they perceive their sexual partners to be safe. Hutchinson (2001) observed that many females’ decision to use condoms is based on flawed perceptions of their partners’ sexual risk. Due to such findings Hutchinson (2001) declared that the act of selecting low-risk partners as a sexual protective strategy might not be an effective strategy. Hutchinson (2001) also noted that many young women use HIV testing as a “post-hoc strategy” (p. 433) for HIV prevention. This means that many young females get an HIV test after engaging in unprotected sex and potentially being exposed to an infection.

In a cross-sectional survey, Hutchinson (2001) observed that some survey participants reported that HIV testing was the only sexual protective strategy that they engaged in. In addition, some participants reported their sexual protective strategy was “talking about sexual histories” with their partners prior to having sex (Hutchinson, 2001). Although talking about sexual history is advised for couples, it should be done as a preface to the discussion of condom use and STI/HIV testing and not as a standalone conversation (Hutchinson, 2001, p.434). Hutchinson (2001) concluded that responses from the cross-sectional survey revealed that some sexual protective strategies currently utilized by young women are unreliable and heighten their risk for STIs/HIV.
Bauman and Berman (2005) observed that in inner-city minority youth the increased risk for HIV infection stems from inconsistent condom use. Previous studies have shown higher condom use in casual relationships than in longer duration or exclusive relationships (Macaluso, Demand, Artz, & Hook III, 2000; DiClemente et al., 2008c; Horner et al., 2009). Reasons attributed for the decline in condom use in longer relationships are the established familiarity and trust with the partner, which leads to the decrease perception of risk for STIs/HIV (Balock & Koniak-Griffin, 2007). Bauman and Berman (2005) conducted an exploratory qualitative study that analyzed how the characteristics of romantic relationships affect condom use in inner-city minority youth. The study revealed that the more committed and lengthy the relationship, the less need for condom use was observed (Bauman & Berman, 2005). Such finding highlights the importance of tailoring HIV prevention interventions to the “relationship context of condom decision-making, and how commitment, trust, and love affect risk” (Bauman & Berman, 2005, p.220).

Brady, Tschann, Ellen and Flores (2009) reported that sexual concurrency has been noted as an “important route of disease transmission and may partially explain ethnic disparities in the prevalence and incidence of STIs (p.227). Sexual concurrency is the act of having sex with other individuals while still sexually involved with a main partner (Brady, Tschann, Ellen & Flores, 2009, p.228). Results from a survey of heterosexually active Latino youth demonstrated that many Latino adolescents and young adults who engage in sexual concurrency do not engage in consistent condom use. (Brady et al., 2009). In contrast, survey results showed that consistent condom use or fewer acts of unprotected sexual intercourse were mostly reported by youth who perceived their partner to be unfaithful (Brady et al., 2008). Brady et al. (2008) concluded that such findings indicate that youth who engage in sexual concurrency might not be taking the necessary precautions to protect their partners from STIs. Results from this study highlight the importance for sexual risk reduction interventions to promote consistent condom use with both main and casual partners.

Horner et al. (2009) conducted a qualitative analysis of African American adolescents’ beliefs about the benefits and risks of withdrawal also known as coitus interruptus, with regards to pregnancy and STIs. Findings from the study revealed that among youth the meaning of withdrawal is multifaceted (Horner et al., 2009). Withdrawal has been defined as a method of contraception, sexual expertise in male youth, and trust building within the context of a stable relationship (Horner et al., 2009). Horner et al. (2009) noted that most youth were aware that the withdrawal method would not necessary protect against STI’s. However their explanation for the lack of protection from STIs was that the male would not necessary withdraw in a timely manner (Horner et al., 2009, p.784). Horner et al. (2009) observed that these held beliefs of withdrawal among youth serve as barriers for sexual risk reduction strategies such as condom use negotiation.

Social Support and Peer Norms. DiClemente et al. (2008c) acknowledged the important role that social networks play in creating an environment that promotes the reduction of health compromising behavior such as unprotected sex. DiClemente et al. (2008c) posited that one of the most influential psychosocial factors in the sexual risk behavior of youth is peer norm. If young adults perceive that their friends are engaging in high-risk sexual behavior, they are more likely to carry out such behavior. Similarly, if young adults perceive a low level of social support for a behavior they are less likely to execute the behavior (DiClemente, Salazar & Crosby, 2007). Kapadia et al. (2012) noted that “perceived peer normative beliefs supporting safer sex practices were associated with consistent condom use and lower likelihood of having multiple sex partners among Latino youth who engaged in substance use” (p. 34).

Similarly, Henrich, Brookmeyer, Shrier and Shahar (2006) found in a longitudinal study of youth that supportive relationships and sexual risk behavior among youth are highly associated. Youth who reported higher levels of sexual risk behavior simultaneously showed poor quality of relationship with their parents and friends (Henrich, Brookmeyer, Shrier & Shahar, 2006). Furthermore, Henrich et al. (2006) concluded that the “parent connectedness and supportive friendships appeared to be equally useful for both prevention and reduction of risk” (p.294). Therefore, HIV prevention strategies should take into account the mitigating effect that supportive parent and peer relationships have in the sexual risk taking behavior of youth.
Socioeconomic Factors. Various studies discuss the issue that race and ethnicity play in the sexual risk taking behavior of youth (Jemmot, Jemmot, Fong, & Morales, 2010; Doswell, Braxter, Cha, & Kim, 2011; Ligthfoot, 2012). However, as an individual factor race and ethnicity have not fully explained the differences in rates of HIV. However, social factors such as geography and socioeconomic status have indicated that youth living in neighborhoods with high rates of HIV face a higher risk for infection (Futterman, 2005). Futterman (2005) observed that youth’s sexual involvement with partners from their high-risk neighborhood “puts them at greater risk than would the same behaviors in a location with low HIV infection rates” (p.103). Due to the establish data connecting health disparity and socioeconomic status, there is no questioning, that there is a heightened vulnerability among youth growing up in low income and poor resourced settings (Futterman, 2005).

Fullilove (2006) reported that “social, political, and economic forces” have traditionally contributed to a high number of African Americans to reside in poor inner city communities without a chance for social mobility (p.17). Futterman (2005) also noted that youth “are the least-insured segment of the population” (p.101); which limits their access to “health care and support” (p.101). Lastly, Futterman (2005) asserted that sexual identity does not equate with sexual behavior (p.102). Futterman (2005) affirmed that “many young men who ultimately will be heterosexual experiment sexually with other men” (p.102), while many engage in homosexual activity prior to self-identifying as homosexual. Subsequently, Futterman (2005) highlights the importance of making a clear distinction between the sexual behavior and sexual orientation of youth.

Theoretical Framework for the Study

This study is guided by four theoretical frameworks: the Stages of Change from the Transtheoretical Model; Self-Efficacy and Role Models within Social Cognitive Theory; Social Support Theory; and the Theory of Diffusion of Innovation.

Methodology

Before the study began permission under the category of “exempt” was obtained from the Institutional Review Board (IRB) of Teachers College, Columbia University, as Protocol #13-096. The category of exempt was requested due to the anonymous and online nature of the study. Moreover, the study only collected aggregate data. All data collection for this study was completed on February 2013.

Study Sample. The study sample (N=201) consisted of a racially diverse group of heterosexually active male and female young adults ages 18 to 25 that participated in an anonymous online survey investigating HIV/AIDS transmission prevention strategies. Out of a total of 325 participants a total of 201 completed the survey in full. From the 325 participants, 124 started the survey but did not complete it. Thus a total of 201 participants were used for data analysis. All participants provided informed consent, and were able to read and write in English, and have access to the Internet to complete the survey.

Study Setting. The online survey was developed and administered through the Qualtrics software technology. In addition, the survey was hosted on the first page of the study’s website www.HowYoungAdultsCopeInHIVEra.org. WordPress was utilized to develop the study’s website. This website provided HIV information and resources that promote sexual risk reduction behavior (i.e. HIV information and testing) and permits participants to virtually post and share adaptive coping strategies that prevent HIV transmission.

Recruitment. Participant recruitment was mainly done via online social networking outlets (i.e. Twitter). Facebook and Twitter accounts were created to promote the study. These two social networking outlets were connected to the study website and to the Qualtrics survey website. This allowed for quick and efficient promotion and dissemination of recruitment messages. The online recruitment messages
employed a snowball technique where everyone who received an online recruitment message was asked to forward the study link to others who they knew and might be interested in participating. In addition, the rejection message for ineligible participants also requested that they share the study survey link with their online network. In order to ensure diverse recruitment of young adults various Facebook pages that represented diverse interest groups were visited and posted on. Recruitment messages were posted on the Facebook of public and private universities as well as various online social organizations that represented young adults (i.e. recent college alumni associations, and sports groups). The professional online network LinkedIn allowed study advertising through various social organizations (American Public Health Association, HIV/AIDS organizations etc…).

**Study Incentive.** Participants who completed the survey were directed to a final link that allowed them to enter a random prize drawing to receive a gift certificate (1st place $300.00, 2nd place $200.00, 3rd place $100.00) for use on www.Amazon.com. At the end of the survey each participant was asked to enter an e-mail address (the Principal Investigator did not have access to). This e-mail was used for the lottery drawing of the gift certificates. Once recruitment was completed three e-mails were randomly chosen and the gift certificates were e-mailed to the three random winners.

**Results**

Out of 325 participants who began the survey, 201 completed the survey, resulting in a 61.8% completion rate.

The participants were a diverse group (N=201) of heterosexually active young adults ages 18 to 25 (mean= 22.64, SD=1.940) years. Eighty-two (40.8%) identified as white; forty-two (20.9%) identified as Asian; thirty-seven (18.4%) identified as Latino; twenty one (10.4%) identified as Black; and nineteen (9.5%) identified as other/mixed category. One hundred and forty eight (73.6%) of the participants reported being female, fifty two (25.9%) reported being male, and one (.5%) reported being transgender. The majority of participants reported being born in the United States (n=148, 73.6%) and 53 (26.4%) reported being born outside the United States. The majority of participants reported living in the United States (n=190, 94.5%) and 11 (5.5%) reported living outside the United States.

The majority of the sample reported being unemployed (n=108, 53.7%), and 93 (46.3%) reported being employed. The majority of the sample reported being in school (n=127, 63.2%) and 74 (36.8%) reported not being in school. The majority of the sample had a Bachelor’s degree (n=99, 49.3%), 38 (18.9%) had a Master’s degree, 23 (11.4%) had a Bachelor’s degree or some college and 2 (1.0%) had a Doctoral degree. In addition, 38 (18.9%) had a high school diploma and 1 (.5%) had only a grade school level of education. The sample population had a broad economic stratum. As such, nearly half the sample (49.3%, n = 99) had income less than $20,000—consistent with 63.2% being current students. Meanwhile, 36 (17.9%) had an income between $20,000 and $39,999, and 18 (9.0%) had an income between $40,000 and $59,999.

See Table 1, Demographic Characteristics of Sample for other details.

**Table1.** Demographic Characteristics of Sample (BD-10) (N=201).

<table>
<thead>
<tr>
<th>Race/ethnicity (N=201)</th>
<th>N</th>
<th>%</th>
<th>Yearly Household income (N=201)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>82</td>
<td>40.8</td>
<td>Less than $20,000</td>
<td>99</td>
<td>49.3</td>
</tr>
<tr>
<td>Asian</td>
<td>42</td>
<td>20.9</td>
<td>$20,000 to $39,999</td>
<td>36</td>
<td>17.9</td>
</tr>
<tr>
<td>Latino</td>
<td>37</td>
<td>18.4</td>
<td>$40,000 to $59,999</td>
<td>18</td>
<td>9.0</td>
</tr>
<tr>
<td>Black</td>
<td>21</td>
<td>10.4</td>
<td>$60,000 to $79,999</td>
<td>13</td>
<td>6.5</td>
</tr>
</tbody>
</table>
Relationship Status. The majority of participants reported never being married (n=123, 61.2%) while 14 (7.0%) reported being married, 18 (9.0%) reported being in a domestic relationship, and 22 (10.9%) reported living with a significant other. A total of 146 (72.6%) respondents lived with their sexual partner and 55 (27.4%) did not. Most participants (n=144, 71.6%) reported having a main or steady partner and 57 (28.4%) did not. Sixty-one (30.3%) participants reported main partner sexual concurrency—i.e. they perceived that their main or steady partner has sex with someone other than them. Forty-nine (24.4%) participants reported personal sexual concurrency—i.e. having sex with others that were not a main or steady partner. In addition, 57 (28.4%) participants reported other partner sexual concurrency—i.e. perceiving that their “other” sexual partner (besides a main or steady sexual partner) has sex with someone other than them. The majority of participants’ sexual partners were heterosexual 183 (91.0%) while 7 (3.5%) were homosexual, and 10 (5.0%) were bisexual. See Table 2, Relationship Status and Sexual Partners, for further details.

Table 2. Relationship Status and Sexual Partners (N=201).

<table>
<thead>
<tr>
<th>Relationship Status (N=2001)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>14</td>
<td>7.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Separated</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Never Married</td>
<td>123</td>
<td>61.2</td>
</tr>
</tbody>
</table>
The Stage of Change for Using the Internet to Access E-Health and Means of Access Scale (SOC-UI-AEH-MA) consisted of 4 items inquiring about participant’s stage of behavior change for using the Internet to obtain e-health or healthcare information, and the means of accessing the internet for such information (i.e. smart phone, tablet, laptop, etc….). Possible scores ranged from 1.00 (precontemplation stage) to 5.00 (maintenance stage); higher scores signified a higher stage of change (i.e. action or maintenance stage). The mean score for this sample (N=201) was 2.97 (SD=1.18), which indicates being closest to the preparation stage for using the Internet to accessing e-health or healthcare information. For the question of using the Internet to access healthcare information (e-health) more than half (n = 107, 53%) of the sample was in a maintenance stage, followed by contemplation (n = 27, 13.4%), precontemplation (n = 26, 12.9%), action (n = 24, 11.9%), and preparation stage (n = 17, 8.5%). In terms of using the Internet to access healthcare information (e-health) specifically about HIV prevention, the majority (n = 101, 50.2%) was in precontemplation, followed by maintenance (n = 34,
16.9%), contemplation (n = 33, 16.4%), preparation (n = 21, 10.4%), and action (n =12, 60%). In terms of using the Internet to access healthcare information (e-health), specifically to share information with others, the sample was mostly in a maintenance stage (n = 63, 31.3%), followed by precontemplation (n = 61, 30.3%), contemplation (n = 41, 20.4%), preparation (n = 20, 10.0%), and action stage (n = 16, 8.0%). The sample reported accessing health care information via the Internet mainly through a laptop (n = 164, 81.6%) followed by a mobile phone (n = 123, 61.2%), desktop computer (n = 90, 44.8%), tablet (i.e. i-pad) (n = 50, 24.9%), or i-pod (n = 11, 5.5%). In addition, a small portion (n = 14, 7.0%) of the sample reported not accessing health information through the Internet. For additional details, see Table 3, Stage of Change for Using the Internet to Access E-health and Means of Access Scale, and Table 4.Stage of Change for Using the Internet to Access E-Health and Means of Access Scale Individual Items.

**Table 3.** Stage of Change for Using the Internet to Access E-Health and Means of Access Scale (SOC-UI-AEH-MA-4) (N=201)

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage of Change for Using Internet (4 items)</td>
<td>201</td>
<td>1</td>
<td>5</td>
<td>2.97</td>
<td>1.18</td>
</tr>
</tbody>
</table>

**Table 4.** Stage of Change for Using the Internet to Access E-Health and Means of Access Scale Individual Items (SOC-UI-AEH-MA-4) (N=201).

<table>
<thead>
<tr>
<th>Items</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. In terms of using the Internet to access healthcare information (e-health)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) I do not use it for this purpose and am not thinking about doing so</td>
<td>26</td>
<td>12.9</td>
</tr>
<tr>
<td>(2) I am thinking about starting to use it for this purpose</td>
<td>27</td>
<td>13.4</td>
</tr>
<tr>
<td>(3) I am planning to start using it for this purpose</td>
<td>17</td>
<td>8.5</td>
</tr>
<tr>
<td>(4) I have been using it for this purpose for less than 6 months</td>
<td>24</td>
<td>11.9</td>
</tr>
<tr>
<td>(5) I have been using it for this purpose for more than 6 months</td>
<td>107</td>
<td>53.2</td>
</tr>
<tr>
<td>2. In terms of using the Internet to access healthcare information (e-health) specifically about HIV prevention?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) I do not use it for this purpose and am not thinking about doing so</td>
<td>101</td>
<td>50.2</td>
</tr>
<tr>
<td>(2) I am thinking about starting to use it for this purpose</td>
<td>33</td>
<td>16.4</td>
</tr>
<tr>
<td>(3) I am planning to start using it for this purpose</td>
<td>21</td>
<td>10.4</td>
</tr>
<tr>
<td>(4) I have been using it for this purpose for less than 6 months</td>
<td>12</td>
<td>6.0</td>
</tr>
<tr>
<td>(5) I have been using it for this purpose for more than 6 months</td>
<td>34</td>
<td>16.9</td>
</tr>
<tr>
<td>3. In terms of using the Internet to access healthcare information (e-health), specifically to share information with others? (i.e. family, friends, students, clients etc…)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) I do not use it for this purpose and am not thinking about doing so</td>
<td>61</td>
<td>30.3</td>
</tr>
<tr>
<td>(2) I am thinking about starting to use it for this purpose</td>
<td>41</td>
<td>20.4</td>
</tr>
</tbody>
</table>
Sexual Behavior History, HIV Status, and STI History is a 10-item scale that elicits information on HIV status, returning for HIV test results, and history of other sexually transmitted infections (STIs). The majority of the participants (83.1%) reported having used a condom to prevent HIV transmission and 16.9% did not. All (100%) of the respondents were born HIV negative. More than half (57.2%) of the respondents took an HIV/AIDS test while 42.8% did not. Of the total sample (N = 201), only 114 responded to the question if they received their test results. Of this subgroup (n = 114) over half (n = 109, 54.2%) received their HIV test results, and only 5 (2.5%) did not. Of the study sample (N = 201) only a subgroup (n = 108) reported the results of their HIV test. From this subgroup (n=108), the majority (n = 107, 53.2%) of the participants tested negative for HIV/AIDS. From this subgroup (n = 108), only 1 (.5%) participant tested positive for HIV/AIDS. The majority (72.6%) of participants have never tested positive for a sexually transmitted disease (STD) or sexually transmitted infection (STI), while 15.9% did. In addition, 11.4% of participants have never taken a test for and STD/STI.

See Table 5, Sexual Behavior History, HIV Status, and STI History, for details.

Table 5. Sexual Behavior History, HIV Status, and STI History (SBH-HS-STIH-10) (N=201).

<table>
<thead>
<tr>
<th>Question</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever had sex and used a condom to prevent HIV transmission? (N=201)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>167</td>
<td>83.1</td>
</tr>
<tr>
<td>No</td>
<td>34</td>
<td>16.9</td>
</tr>
<tr>
<td>2. Were you born HIV positive? (N=201)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>201</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. Have you ever taken a test to see if you have HIV/AIDS? (N=201)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>115</td>
<td>57.2</td>
</tr>
<tr>
<td>No</td>
<td>86</td>
<td>42.8</td>
</tr>
<tr>
<td>4. If yes, did you receive your HIV test results? (n=114)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>109</td>
<td>54.2</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>5. If yes, did you test HIV positive? (n=108)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>No</td>
<td>107</td>
<td>53.2</td>
</tr>
</tbody>
</table>
6. Have you ever tested positive for any sexually transmitted disease or sexually transmitted infection (i.e. syphilis, gonorrhea, herpes, etc…)? (N=201)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N/A (never took test)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32</td>
<td>146</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>15.9</td>
<td>72.6</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Regression analyses identified the best predictors for participants being in an action or maintenance stage for engaging in condom use, negotiating condom use with partner, refusing to have unprotected sex, and having one's own supply of condoms.

As an initial step bivariate and then multivariate regression analyses were done, followed by backward stepwise regression analyses. The backward stepwise regression analyses showed the 5 variables that best predicted being in an advanced stage of change (i.e. action or maintenance) for performing all HIV risk reduction behaviors were not having a main sex partner (B= -0.504, SE = 0.162, p<.01), having more access to the internet (B = 0.150, SE = 0.070, p<.05), having a high level of self-efficacy (B = 0.425, SE = 0.071, p<.001), a higher level of social support (B = 0.360, SE = 0.130, p<.01) and more access to role models (B = 0.221, SE = 0.084, p<.01). For this model the adjusted R square was 0.326 (F= 17.016, p<.001); meaning that 32.6% of the variance was explained by this regression model.

Table 6. Backward Stepwise Regression Analysis Predicting Global Empowerment Stage of Change Score (ESOC-4-GLOBAL) Outcome Variable # 1

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>SE_B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Having a Main Sex Partner</td>
<td>-.504</td>
<td>.162</td>
<td>.002**</td>
</tr>
<tr>
<td>More Access to Devices for Internet</td>
<td>.150</td>
<td>.070</td>
<td>.032*</td>
</tr>
<tr>
<td>Empowerment Self-Efficacy (ESE-4)</td>
<td>.425</td>
<td>.071</td>
<td>.000***</td>
</tr>
<tr>
<td>Empowerment Social Support (ESS-4)</td>
<td>.360</td>
<td>.130</td>
<td>.006**</td>
</tr>
<tr>
<td>Empowerment Role Models (ERM-4)</td>
<td>.221</td>
<td>.084</td>
<td>.01**</td>
</tr>
</tbody>
</table>

Adj. R²=.326  *p<.05, **p<.01, ***p<.001

Table 7. Emergent Themes From Participant Responses to Qualitative Question (N= 196).

<table>
<thead>
<tr>
<th>Category</th>
<th>Theme</th>
<th>Sub-Theme</th>
<th>Sub-Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coping Strategies</td>
<td>Long term relationship/steady partner or HIV testing as a reason for not using condoms</td>
<td>Asking about past medical history including results of recent HIV test</td>
<td>Poor self-regulation of emotions</td>
</tr>
<tr>
<td>Barriers</td>
<td>Insufficient sex education and stigma were identified as factors contributing to HIV transmission</td>
<td>Culture, family, poor knowledge, stigma lead to low self-efficacy for condom negotiation</td>
<td>Poor access to health services (uninsured health status)</td>
</tr>
<tr>
<td>Condom use and context of relationship</td>
<td>Consistent condom use is important for casual sex partners but not for steady partners</td>
<td>Concern with partner honesty</td>
<td></td>
</tr>
<tr>
<td>Peer Norms</td>
<td>Social network supports condom use</td>
<td>Social network includes individuals with STIs/HIV</td>
<td>Peer Perception of HIV risk</td>
</tr>
</tbody>
</table>
Qualitative Data. A total of 196 participants responded to this question. Four major themes emerged: 1.) Long term relationship/steady partner or HIV testing as a reason for not using condoms consistently; 2.) Insufficient sex education and stigma as factors contributing to HIV transmission; 3.) Consistent condom use is important for casual sex partners but not for a steady partner; and, 4.) Social network is supportive of condom use. See Table 7 for these four major themes, as well as sub-themes and related categories. The categories also serve to provide organization for presentation of the results.

Category # 1 - Coping Strategies. A substantial number of participants equated a steady or long-term partner to a safe partner and therefore perceived their HIV risk to be low and did not use condoms—as the first major theme, explaining how they coped. However, most of these participants reported getting an annual HIV test as a precautionary measure. One participant stated, as an example of this first major theme:

_I am in committed sexual relationship, and my partner and I have both been tested. I am confident in our relationship, so I trust we are the only sexual partners for each other. Therefore I have no need to worry about transmitting or being infected with HIV._

Another participant stated the following, also exemplifying this first major theme:

_I only have one sexual partner and we have both been tested for STIs/HIV, are both negative so do not use condoms._

A small group reported asking sexual partners about their medical and recent HIV test as a prevention strategy; this emerged as a sub-theme in Category # 1- Coping Strategies. One participant stated:

_I think it is really important to ask your partner about their STI status before getting into a passionate moment._

Some participants mentioned the issue of using condoms due to HIV information, but acknowledged that sexual behavior is influenced by other factors such as poor self-regulation of emotions—as another sub-theme. One participant stated:

_It’s hard to weigh trust and emotional and sexual satisfaction against hard data._

Category # 2 - Barriers. Aside from how they coped, many participants identified various factors serving as barriers to engaging in sexual risk reduction strategies—while the second major theme of insufficient sex education and stigma were identified as factors contributing to HIV transmission. Here, there was a sub-theme of poor access to health services and a lack of health insurance emerged as a reason for not getting tested for STIs/HIV or accessing health information. One participant stated:

_We had unprotected sex 3-4 times. A big barrier in getting tested has been lack of insurance._

Culture, family values, poor knowledge, and stigma were seen as leading to low self-efficacy for condom negotiation—as another sub-themes. In this regard, such issues were reported as factors affecting the level of self-efficacy for engaging in sexual risk reductionbehave. One participant stated:

_Cultural issues surrounding sex--my family does not discuss it and it is very private--made it harder for me to address sex safety issues in the beginning of relationships._

Category # 3 -- Condom use and context of relationship. Most participants acknowledge the importance of engaging in sexual risk reduction strategies such as consistent condom use, which is seen as important for casual sex partner, but not for steady partners—as the third major theme, showing how they coped in this era of HIV. However, a substantial amount of participants reported consistent condom use mostly in the context of casual relationships (i.e. one night stands, sexual concurrency). Sometimes there was implied a concern with one’s main partner being honest which might place one at risk, as another sub-theme. One participant stated:

_I am more likely to contract HIV in my monogamous relationship, where I have unprotected sex, than in a random hook-up, where I would ideally use protection._
Category # 4 -- Peer norms. Many participants attributed their heightened awareness of HIV risk due to knowing someone in their social networks that supported condom use—as the fourth major theme. This might involve someone within the social network being HIV positive or having an STI, as a sub-theme, thereby motivating risk reduction behavior among others in the network. There was also the sub-theme of peer perception of HIV risk, such that having a peer afflicted by an STI/HIV seemed to encourage some individuals to engage in sexual risk reduction behavior due to greater risk awareness. However, some individuals reported not knowing anyone who was HIV positive in their social network, and did not perceive HIV infection to be a big problem in society—nonetheless underscoring the influence of peer norms. One participant stated:

I have a friend who is transgender and HIV positive. Nevertheless, her condition reminds me to practice safe sexual habits.

Another participant stated:

The reality that there are young adults who are HIV positive doesn’t affect me very much as I do not have anyone in my social circle who is HIV positive...

In this manner, the qualitative data analysis produced four major categories encompassing four major themes, with mention of relevant sub-themes. The examples were representative, serving to illustrate the categories, themes, and sub-themes.

Final Data on Co-Creation of Website Content

Participants not only completed the online survey hosted at the study website, www.HowYoungAdultsCopeInHIVEra.org/, but also explored this new website created by the researcher—while not at the level anticipated. The website provided e-health tailored for the population of contemporary diverse sexually active young adults. A comment section allowed the young adults to co-create with this health educator (i.e. the researcher) the content of the e-health available on the new website. They did this by the sharing some of their adaptive coping strategies to prevent HIV transmission. The following questions served as a springboard for their online conversation and social exchange:

As a sexually active young adult, how do you cope in the ongoing era of HIV/AIDS? For example, how do you cope with the reality that there are young adults who are HIV positive (i.e. born HIV positive or acquired HIV) and may be in your social circle? Do you use any strategies to prevent HIV transmission? Are you doing anything that you feel “works” or has been successful in preventing the transmission of HIV?

Despite the best intentions of the researcher, only 3 people actually engaged in co-creation of website content by offering comments, as follows:

1) I think that’s a very good site!
2) As a young person, I understand that we most of the time we are careless about harmful issues as diseases. We don’t like going to a doctor and checking how healthy we are (sometime because it could be expensive). We think we are not vulnerable to it, and we prefer to take the risk of having sex without protections and with strangers. But, sadly we don’t understand how easy we can get infected until it happens to us. Until that point we don’t start getting educated on sexual diseases. Also, nobody who was born with HIV would tell about it. They might feel afraid of being rejected. I suppose some of them are around me, but I cannot know it. Thus, since these situations can occur, I prefer to be very careful with my sexual activity and the person I choose to be my partner. I always opt for protection and keep a partner who is as careful with his health as me.

The researcher replied: Thank you for your informative and thoughtful response.

Next, someone posted, as follows:

3) I never really fear for HIV. Even when I choose to use a condom, I do so thinking to prevent other STDs and STIs. Other than that condom, I do nothing to prevent transmission and it never really crosses my mind. I get tested regularly and as of very recently, I am consistent with using
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protection. I used to just have sex with whomever rawly and had no second thought for consequences. A bad result a few years ago was curable, but it could have been worse. That bad test result was what facilitated a change in me although it did not happen until a few years later. Now I always use a condom.

Finally, the researcher replied: Thank you for your comment. Your experience will surely help someone else.

Meanwhile, just these two comments served to reflect and mirror themes from the qualitative data: the importance of a long term relationship/steady partner and consistent condom use.

Discussion

The problem that this study addressed was the need for better understanding of the multiple factors that influence the sexual behavior of heterosexually active young adults, specifically condom use behaviors with sexual partners. Furthermore, there is a need for tailored HIV prevention messages for contemporary heterosexually active young adults, within the ongoing era of HIV/AIDS. Such young adults need information on adaptive coping strategies to avoid HIV transmission, while also being potential co-creators of e-health that identifies these strategies. This study addressed the need for obtaining the empowerment profiles of young adults which has been suggested to be valuable information for use in designing and tailoring interventions to address sexual risk behavior (King, 2012). Such information provides an empowerment profile of the stage of change, self-efficacy, access to social support, and access to role models for engaging in sexual risk reduction behaviors.

Contemporary young adults who are sexually active have grown up with Web 2.0 which has allowed them to enjoy social networking tools, media sharing, user generated content, instant updates, and online connections between people (Misra & Wallace, 2012). Misra and Wallace (2012) noted how the next public health revolution will involve social networks—with well-designed e-health messages that can play a crucial role in achieving the goals of health equity and overcoming disparities in health. This study addressed the need to create e-health that is tailored and designed for contemporary diverse young adults who are sexually active in the ongoing era of HIV/AIDS. This includes obtaining information on young adults via empowerment profiles, and understanding how young adult cope in the era of HIV/AIDS—as information of potential value in designing e-health.

There has been a national decrease in the number of youth who report having ever been taught in school about HIV/AIDS (CDC, 2012b). Lack of information and strategies to address the HIV epidemic among youth can result in the adoption of maladaptive coping strategies to deal with the reality of HIV. Due to the high incidence of HIV infection in the young adult population, effective HIV preventive strategies must be made available for this population. However, there are insufficient evidence based interventions that address the numerous factors placing diverse young adults at risk for HIV infection. It is therefore imperative that HIV interventions for young adults acknowledge the multiple priorities competing with HIV prevention in the lives of young adults, while seeking to promote long-term preventive behavioral strategies, such as instilling intentions to use condoms (DiClemente, Salazar, & Crosby, 2007b). Moreover, tailoring HIV interventions to the needs of the young adult population includes ensuring that their specific risks are being addressed within the ongoing era of HIV/AIDS—including the reality that there may possibly be those within their social circle who were born with HIV, and have the potential to transmit HIV at the time of their sexual debut, while others in their social circle may have already acquired HIV.

Within the domain of demographics, there was also data collected and findings that arose related to the issue of sexual concurrency. Sexual concurrency has been noted as an important pathway of HIV transmission (Brady, Tschann, Ellen & Flores, 2009). Moreover, the sexual networks that are created through sexual concurrency are considered to contribute to the high incidence and prevalence of HIV in minority populations (GriebDolwick, Davey-Rothwell & Latkin, 2012). Regarding main partner sexual
concurrency (i.e. they think their main or steady sexual partner has sex with someone other than them) more than a quarter (n=61, 30.3%) thought their main/steady partner had an additional sex partner and less than half (n=86, 42.8%) did not think their main/steady partner had an additional sex partner. Regarding personal sexual concurrency (i.e. having sex with others that were not a main/steady sexual partner) under a quarter (n=49, 24.4%) reported personal sexual concurrency while more than half (n=110, 54.7%) did not. Over a quarter (n=57, 28.4%) reported other partner sexual concurrency (i.e. feeling that their “other” sexual partners-besides a main or steady sexual partner) has sex with someone other than them. In contrast a smaller (n=29, 14.4%) portion of the sample did not feel that their other sexual partners had someone other than them. In addition, 24% reported having sex with someone other than a main/steady partner-i.e. personal sexual concurrency and 22.6% felt that their “other” sexual partner (besides a main or steady sexual partner) had sex with someone other than them. As such the King (2012) results are similar to the aforementioned findings of the present study. Also, Shorter (2012) reported that 34.8% of her sample had a sexually concurrent main or steady partner (main partner sexual concurrency), while 14.5% of the women personally had other sexual partners (personal sexual concurrency), and 18.8% reported other partner sexual concurrency.

Moreover, results from a survey of heterosexually active youth demonstrated that many young adults who engage in sexual concurrency do not engage in consistent condom use (Brady et al., 2008). Brady et al. (2008) concluded that such findings indicate that youth who engage in sexual concurrency might not be taking the necessary precautions to protect their partners from STIs. Results from this study highlight the importance for sexual risk reduction interventions to promote consistent condom use with both main and casual partners. The qualitative data themes confirmed this need. Recall that a substantial number of participants equated a steady or long-term partner to a safe partner and therefore perceived their HIV risk to be low and did not use condoms. However, most of these participants reported getting an annual HIV test as a precautionary measure. It is asserted that an individual’s risk for STIs/HIV not only depends on the individual’s behavior, but also on the partner’s behavior (Drumright, Gorbach, & Holmes, 2004). As such, in a study analyzing individual concurrency and perceptions of partners’ concurrency, it was reported that of some 61 individuals whose partners reported having concurrent partners, only 16 (26%) were able to correctly report the partner’s concurrency. Similar to the present study, Drumright et al (2004) found that 32% of participants reported personal sexual concurrency--i.e. having sex with someone “other” than a main or steady partner. The findings showed that young adults “are not able to accurately report on a partner’s behavior unless that behavior is something they practice together” (Drumright et al., 2004).

Recommendations for Future Research

Findings from the regression analyses of the present study showed that, in the sample, those who had a higher level of empowerment to engage in HIV/AIDS risk reduction behaviors (e.g. condom use) utilized more devices (e.g., laptop, cellphone, ipad etc.….) to access the internet, had more social support and access to role models promoting HIV/AIDS risk reduction behavior, and were less likely to have a main sex partner. Conversely the regression models accounted for only a modest proportion of the variance—which necessitates future research to elucidate other factors that might contribute to the high-risk sexual behavior of young adults. Potential variables for inclusion in future research were suggested by the emergent themes from the qualitative data: measures of coping strategies; measure of self-regulation of emotions; measures of stigma; measures of family influences in early development; and, measures of cultural values. It may be noted that there are an insufficient number of theories on adolescent health behavior change and the influence that emotional regulatory processes have on behavior change (Lightfoot, 2012). Subsequently, future research should explore the impact that emotional awareness and adaptive coping strategies have in the cultivation of emotional regulation in youth.
Study Limitations

The study had several limitations. Instead of using a random sample from the selected population, the study used a convenience online sample. This limits the generalization of the study’s findings beyond the online sample. The participants were asked to complete a self-reported survey. There was no way to verify these self-reported answers. A social desirability measure could have been used, but was not due to time constraints for completing the survey. Also, it is possible that face-to-face interviews might have better engaged participants, while the online format assured them of confidentiality.

This study is an exploratory study, which did not test any hypotheses. The design of the study was cross-sectional, signifying that data was only collected at one point in time. This snapshot view of the sample only permitted the establishment of a relation between the study variables (e.g. condom use and social support), but not causality.

Furthermore, the study entailed the inherent bias toward those with better English skills, higher levels of education, and higher levels of skills using computers/Internet. As a result of using the Internet, people with no access to the Internet were also excluded, further limiting the generalizability of findings.

All of these limitations must be kept in mind when considering the study results.

Conclusion

The findings of the present study demonstrate that the sexual behavior of young adults is influenced by a myriad of factors that merit acknowledgment when developing sexual risk reduction interventions. National data indicates that approximately 1 in 4 (26%) of all new HIV infections occur in young adults ages 13 to 24 years (CDC, 2012c). Such data suggest that current strategies to address the sexual risk taking behavior of youth are not sufficiently effective, and that more must be done. This suggests a potential role for health educators who may engage in the task of tailoring e-health for diverse young adults. Moreover, compared to white youth (20%) the African American population (60%) and Latino population (20%) experience a higher burden of HIV infection rates (CDC, 2012c). Such disproportionate rates reflect the salient health disparity experienced by racial minorities in the United States. Thus, health educators may need to specifically focus on these health disparities, while also tailoring culturally appropriate e-health interventions for African American and Latino young adults.

Although HIV knowledge has been shown to be instrumental in the reduction of HIV transmission, 16% of high school students reported never being taught in school about HIV/AIDS infection; this results in a lack of sound HIV prevention information among young adults who are sexually active (CDC, 2012d). Until the year 2010, there was only federal funding for abstinence only education. Currently, through the Patient’s Protection Affordable Care Act (PPACA), comprehensive risk reduction is funded. However, the funding requirement does not specify that comprehensive risk reduction programs address STIs or HIV prevention (Sonfield& Pollack, 2013). For society to fully begin to address the HIV epidemic in the young adult population, it must first acknowledge that collective action is necessary. As such, HIV/AIDS should be perceived as a social issue that must be addressed through education and social policies (i.e. HIV anti-stigma campaigns) that aim to bring about change in the behavior of society. The field of health education must use every tool at its disposal to address the HIV epidemic in the young adult population. Condom use has been proven to be highly effective; however, they are not regularly used among young adults (DiClemente et al., 2008). HIV counseling and testing has also been found to reduce high-risk taking behavior (Hall et al., 2008). Furthermore, a vast amount of behavioral interventions have been proven to reduce sexual risk behavior by 20% to more than 40% (Hall et al., 2008). Separately, these strategies result in less than 70% effectiveness; however, combined they have the potential of arresting the HIV epidemic in the young adult population. It is, therefore, imperative that the health field exploit all available tools to address the HIV epidemic which can potentially halt the progress of society’s future generations. Due to the growing availability of computer-based technology for health interventions, it is an exciting time for the field of health education, given the myriad of
possibilities made available via e-health. A valuable lesson that the HIV epidemic has brought forth is that prevention strategies must be held in high regard, and they must be accessible to all in society, because one person infected with the virus is one too many.

References


