Published in final edited form as:

AIDS Behav. 2015 July ; 19(7): 1288–1297. doi:10.1007/s10461-014-0900-2.

Perceived Difficulty of Performing Selected HIV/AIDS Preventive Behaviors and Life Satisfaction: Is there a Relationship for African American Adolescents?

Robert F. Valois,

Health Promotion, Education & Behavior, Family & Preventive Medicine, Schools of Public Health and Medicine, 915 Green Street, Discovery 1 Building, Room 534, University of South Carolina, Columbia, SC 29208 USA

Jelani C. Kerr,

Health Promotion & Behavioral Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY, USA

Michael Hennessy,

Public Policy Center, Annenberg School for Communication, University of Pennsylvania, Philadelphia, PA, USA

Ralph J. DiClemente,

Behavioral Sciences & Health Education, Rollins School of Public Health, Emory University, Atlanta, GA, USA

Larry K. Brown,

Department of Psychiatry, Rhode Island Hospital, Alpert Medical School of Brown University, Providence, RI, USA

Michael P. Carey,

The Centers for Behavioral & Preventive Medicine, The Miriam Hospital and Brown University, Providence, RI, USA

Peter A. Venable,

Department of Psychology, Center for Health & Behavior, Syracuse University, Syracuse, NY, USA

Naomi B. Farber,

School of Social Work, University of South Carolina, Columbia, SC, USA

Laura F. Salazar, and

Division of Health Promotion & Behavior, Institute of Public Health, Georgia State University, Atlanta, GA, USA

Daniel Romer

Public Policy Center, Annenberg School for Communication, University of Pennsylvania, Philadelphia, PA, USA

Introduction

The adolescent period is one of rapid and transformative development, characterized by efforts to confront and surmount challenges and to establish a sense of identity and autonomy. While the majority of adolescents manage the sometimes turbulent transition from childhood to adulthood becoming healthy and productive adults, there is an emerging concern that far too many adolescents may not achieve their full potential [1]. Adolescence is also a period fraught with many threats to the health and well-being, sometimes leading to substantial premature impairment and disability [1]. Significant contributors to adverse health consequences experienced by adolescents are, to a larger extent, the result of health risk behaviors [2,3].

Of particular concern are behaviors that place adolescents at risk for HIV infection, other sexually transmitted infections (STIs), and unintended pregnancy, in essence, sexual risk behaviors (SRB) [3-6]. Large, national surveillance studies of adolescents have consistently found African American adolescents at greater sexual health risk compared to Hispanics and Caucasians: they begin sexual intercourse at an earlier age, have a higher prevalence rate of current sexual intercourse activity and a greater prevalence of having four or more lifetime sexual intercourse partners [5-6].

The incidence rate of HIV in the United States is seven times higher among African Americans than among Whites [7], with disproportionate transmission through heterosexual contact [8]. Although this group constitutes approximately 13% of the population, it accounts for 44% of new HIV cases [9]. Mortality rates for African-Americans (31.0 per 100,000) far exceed that of Caucasian Americans (3.5 per 100,000) [10]. Further, 63% of 13-24 year olds with AIDS who die are African-American [11]. Although adolescents with HIV/AIDS represent a minority of US cases (approximately 5%) they constitute one of the fastest growing groups of newly infected persons in the USA, and African American adolescents are disproportionately affected. Of the estimated 18,849 persons under the age of 25 years who were diagnosed with HIV/AIDS during 2001 through 2004, 61% were African American [12].

HIV/AIDS reduction among African-Americans is a priority health concern in the United States, especially for African American adolescents [8]. To reduce HIV/AIDS among African American adolescents through primary prevention, they need to perform, in a consistent manner, HIV/AIDS preventive behaviors [13-18]. In essence, these HIV/AIDS preventive behaviors include: delaying sexual intercourse; sexual intercourse refusal; purchasing condoms; carrying condoms; consistent condom use; condom use after drug/alcohol consumption; and effective condom use partner communication [19-21]. However, some adolescents perceive performing these HIV/AIDS preventive behaviors as difficult [22,23].

Measurement of perceived difficulty in performing HIV/AIDS preventive behavior can be framed as a measure of self-efficacy. Self-efficacy is defined as one's sense of competence and confidence in performing behaviors to achieve an outcome [24]. The importance of self-efficacy is depicted by research that identifies robust links between self-efficacy beliefs and

important domains of human functioning, including mental and physical health outcomes [25]. Self-efficacy can also be influenced by emotions [13-15]. Life satisfaction (LS) is viewed as the cognitive component of subjective well-being, and it involves a cognitive appraisal of the quality of one's life as a whole and/or specific life domains [26]. Thus, an individual's subjective well-being reflects their general frequency of positive and negative emotions and their judgment of overall life satisfaction [27]. The study of emotional self-efficacy is an emerging area of research in adolescent health [28-30] and research points to the importance of this domain of emotional self-efficacy, that is, beliefs regarding competence in controlling negative emotions [28-30]. Life satisfaction seems to predict a person's ability to function in major life tasks or social roles [31].

There is a growing body of research exploring the relationship between adolescent health risk behaviors, developmental assets and perceived life satisfaction [1,2,32,33]. Researchers have found significant relationships between decreased adolescent life satisfaction and substance abuse [34,35], violent and aggressive behaviors [36,37], suicide ideation and behavior [38], sexual behaviors associated with the risk of STIs, HIV and unintended pregnancy [39-41], severe dating violence [42], inappropriate dieting behavior and body weight perceptions [43-45] and a lack of physical activity [46]. These findings suggest that perceived quality of life (life satisfaction) has been a neglected component of adolescent health research [47]. What is lacking in the adolescent literature are studies that examine the relationship between the perceived difficulty of performing sexual behaviors that are HIV/AIDS preventive in nature and life satisfaction (framed as a measure of emotional self-efficacy for adolescents).

Therefore, the first objective of this study was to determine if African American adolescents' perceived difficulty of performing HIV/AIDS preventive behavior is associated with perceived life satisfaction. We hypothesized that higher levels of perceived difficulty in performing HIV/AIDS preventive behavior would be significantly associated with lower levels of perceived life satisfaction. The second objective was to determine differences between perceived difficulty of performing HIV/AIDS preventive behavior and life satisfaction by adolescents' gender. The analyses are guided by results observed in the adolescent life satisfaction [48-51] and sexual risk behavior literature [28,39,42,52,53] where results varied as a function of gender across each study.

Methods

Participants were 1,658 African American adolescents recruited in two matched northeast (Providence, RI and Syracuse, NY) and two matched southeast U.S. mid-sized cities (Columbia, SC and Macon, GA) for a multilevel HIV preventive-intervention, Project iMPPACS [54,55]. The four selected cities are in regions of the U.S. with high HIV/AIDS and STI rates, have similar population sizes, and a high concentration of African-American youth living at or below poverty levels. Cities were matched according to these general similarities, and specifically matched on their rates of adolescent sexually transmitted infection. All self-reported African-American adolescents age 13 to 18 who were able to speak and read English were eligible to participate. Youth were recruited through direct outreach of young people attending community based organizations that provide

recreational, social and education services for African American youth (21%), participant referrals (29%), respondent driven sampling (15%), and referrals from adult community members (14%), school-based social workers (12%), and street outreach by the study team (9%). A detailed report of our experiences working with community partners for Project iMPPACS can be found elsewhere [56]. Data were collected at baseline, three months, six months, twelve months, eighteen months, and 36 months among a cohort of African American youth. The study utilized a randomized-control design to test the effects of mass media on sexual health risk among African American youth. Of the 2,145 adolescents invited to participate, 1,658 were consented/assented, assessed at baseline, and randomized to a treatment condition (77%). The 23% who did not participate included adolescents who reported having scheduling conflicts, parent/guardian disapproval of the program, or lack of interest in the program and those adolescents who could not be reached to schedule their baseline appointment.

Data Collection

All study protocols were approved by the Institutional Review Boards (IRBs) at the respective universities in the four study sites. Baseline data were collected via Project iMPPACS in 2006 [54,55]. After acquiring parental consent and youth assent, participants completed an Audio Computer Assisted Self-Interview (ACASI) on a laptop computer that gathered data on participant's demographic characteristics and intervention-related knowledge, attitudes, life satisfaction, self-efficacy, perceptions and behavior. ACASI procedures are preferred for robust and accurate data of a sensitive and private nature [57-59]. ACASI also demonstrates effectiveness in limiting social desirability of responses [60-61]. The auditory component of the ACASI that recites question and response options helps reduce literacy-related challenges [58]. The ACASI took approximately 45 minutes to complete and participants were compensated \$30 for their time and effort.

Instrumentation

Life Satisfaction—The Brief Multidimensional Student Life Satisfaction Scale (BMSLSS) was based on the 6 domains (satisfaction with: family, friends, school, self, living environment, and a global item, overall life) of the Multidimensional Students' Life Satisfaction Scale [62-64]. The BMSLSS has been validated for use with children/adolescents aged 8 to 18 [65,66] with Cronbach's internal consistency coefficients ranging from .75 to .85 in studies with ethnically diverse adolescents [67-69]. This scale contains one item for each domain: "I would describe my satisfaction with my family life as;" "I would describe my satisfaction with my friendships as;" "I would describe my satisfaction with my school experience as;" "I would describe my satisfaction with myself as;" "I would describe my satisfaction with where I live as;" and a global question "I would describe my satisfaction with my overall life as." Seven response options from the widely used Terrible-Delighted Scale were used for each of these questions [70]. Response options were: 1 (Terrible); 2 (Unhappy); 3 (Mostly dissatisfied); 4 (Mixed: about equally satisfied and dissatisfied); 5 (Mostly satisfied); 6 (Pleased); 7 (Delighted). The six life satisfaction variables collapsed into one quasi-continuous variable ranging in score from 6 (1×6) to 42 (7×6). Scores within the 6-42 range were divided by 7 (to integrate into the 1-7 response

item metric) and the averages of the collapsed variable were ascertained for the total sample, males, and females. For this study with African American adolescents the BMSLSS had a Cronbach internal consistency coefficient of .83.

Perceived Difficulty of Performing AIDS Preventive Behavior—Cronbach internal consistency coefficients for the perceived difficulty of performing HIV/AIDS preventive behavior (PD) scale from previous studies [22,23] ranged from .65 to .71. For this study of African American adolescents the Cronbach alpha was .76. The PD scale consisted of 7 items: “How hard or easy would it be for you to wait to have sex until you are several years older or wait to have sex again if you’ve already had sex;” “How hard or easy would it be for you to tell a boyfriend or girlfriend you are not going to have sex with them;” “How hard or easy would it be for you to get condoms at a place close to your home or school;” “How hard or easy would it be for you to carry condoms with you so they would be handy if you had sex;” “If you have sex, how hard or easy would it be for you to make sure you and your partner use a condom every time;” “If you have sex after drinking or using drugs, how hard or easy would it be for you to make sure you and your partner use a condom every time;” “How hard or easy would it be for you to talk about using condoms with your boyfriend or girlfriend.” Response options were: 1 (very hard to do); 2 (hard to do); 3 (fairly hard to do); 4 (fairly easy to do); 5 (easy to do); and 6 (very easy to do). The PD variables were collapsed into a single quasi-continuous variable ranging in score from 7 (1×7) to 42 (6×7). Scores within the 7-42 range were divided by 6 (to integrate into the 1-6 response item metric) and the averages of the collapsed variable were ascertained for the total sample, males, and females.

Data Analysis

Descriptive statistics were computed for the total sample. Mean scores for the total PD variable, LS scale, and individual PD variables were computed for the total sample as well as separately for males and females. Analysis of covariance was performed to determine differences in the PD variables, life satisfaction, and mean perceived difficulty by sex. Linear regression analyses examined associations between LS and PD variables for the total sample, and separately for males and females. Tests for heteroscedascity indicated that distribution of residual error was not uniform. Therefore, robust standard errors were estimated. To adjust for a mildly skewed distribution, data were also transformed (square root of dependent variable ascertained) and regression analyses were performed. P-values of transformed data were not statistically different than non-transformed data presented. All models controlled for age and socioeconomic status (free/reduced price school lunch) owing to age and socioeconomic status differing in their association with adolescent sexual risk behavior [28,39,42,52,53]. Analyses were performed using Statistical Analysis Software (SAS 9.2).

Results

The sample consisted of 60% female participants and 40% male with a mean age of 15.08 (SD 1.10) (Table 1). Approximately 74% of participants qualified for free or reduced price school lunch.

Mean scores for LS and PD variables are presented in Table 2. The mean LS score for the total sample was 5.41 (Standard Deviation (SD)=1.03). The life satisfaction mean total score for males (mean=5.55, SD=1.05) was higher than females (mean=5.47, SD=1.04). The mean total score for PD of the total sample was 4.69 (SD=0.94). Mean total PD scores for females (mean=4.57, SD=0.96) were higher than males (mean=4.39, SD=0.96). Analysis of covariance indicated that, compared to males, females had higher scores for the mean PD ($p<0.0001$), waiting to have sex until older ($p<0.0001$), telling a partner no to sex ($p<0.0001$), using condoms consistently with a partner ($p<0.0001$), using a condom with a partner after alcohol or drug use ($p<0.05$), and talking about condom use with a partner ($p<0.01$) (Table 2). Males had significantly higher scores for ease of getting condoms ($p<0.01$), ease of carrying condoms ($p<0.0001$), and life satisfaction ($p<0.01$) (Table 2).

Results of linear regression analyses assessing the relationships between decreased LS and increased PD to perform HIV/AIDS preventive behavior are presented in Table 3. The parameter estimate ($B=0.24$; $p<0.0001$) indicates a significant positive relationship between life satisfaction and the perceived difficulty to perform HIV preventive behavior. PD score decreased by 0.24 for every 1 unit decrease in LS. Analyses controlled for age and qualification for free or reduced price school lunch. There were significant relationships between self-reported life satisfaction and self-reported perceived difficulty to perform all HIV/AIDS preventive behavior variables ($p<0.0001$) for the total sample and females. There were significant relationships at ($p<0.0001$) between decreased LS and all perceived difficulty variables with the exception of "Telling your partner you will not have sex with him/her" ($p<0.01$) for males.

In summary, the results showed a relationship between decreased life satisfaction and increased perceived difficulty to perform HIV/AIDS preventive behavior. Individuals with lower reported life satisfaction were more likely to report greater perceived difficulty in executing HIV/AIDS preventive behavior (delaying sexual intercourse; sex refusal; purchase condoms; carry condoms; consistent condom use; condom use after drug/alcohol use; condom use partner communication). This pattern of results was established for both African American males and females with gender differences for specific perceived HIV/AIDS preventive behaviors.

Discussion

Because African American adolescents experience extreme disparities in sexual health outcomes such as HIV, STIs and teen pregnancy, it is important to identify relevant and modifiable factors that may impede their abilities to engage in safer sex behaviors. We examined whether a perceived life satisfaction (framed as an emotion), influenced adolescents' abilities for selected safer sex practices. Results showed statistically significant associations between lower levels of perceived life satisfaction and higher levels of perceived difficulty in performing seven HIV/AIDS preventive behavior variables.

We also found that these associations varied as a function of gender. In regard to postponing sexual intercourse, results suggest that females had less perceived difficulty in performing this preventive behavior ($p<0.0001$) compared to males. This finding is consistent with the

literature on refraining from sexual intercourse for adolescents in general [71] and for male adolescents in particular [5,6,13,15,72]. Females with greater life satisfaction also had less perceived difficulty for performing this behavior than females with lower life satisfaction ($p<0.0001$). It should be noted again here, that life satisfaction (LS) is viewed as the cognitive component of subjective well-being, and it involves a cognitive appraisal of the quality of one's life as a whole and/or specific life domains [26]. Thus, an individual's subjective well-being reflects their general frequency of positive and negative emotions and their judgment of overall life satisfaction [27]. Previous research notes the importance of emotional self-efficacy, that is, beliefs regarding competence in controlling negative emotions [28-30]. Life satisfaction seems to predict a person's ability to function in major life tasks or social roles [31]. In regard to adolescent emotions (life satisfaction) and sexual risk-taking behavior (perceived difficulty in performing preventive behaviors) a Puerto Rican study [15] found that negative emotion reaction regarding sexual intercourse was more strongly associated with females intent to abstain from sexual intercourse with a main partner (vs. other partner) among 10th and 12th grade students, [15] similar to our findings for postponing sexual intercourse. In a more recent study, Hessler & Fainsilber-Katz [29] found that difficulty controlling emotions (low life satisfaction) was associated with having more sexual partners (higher perceived difficulty) in a longitudinal study of early adolescents.

A similar trend was observed with difficulty in telling a boyfriend or girlfriend that you are not going to have sex with them (sex refusal). Females reported decreased difficulty in refusing sex compared to males ($p<0.0001$) in this study and others. In 2012, a nationally representative school-based study in Lebanon [73] was conducted for grades 7-9 on self-efficacy and protective sexual behaviors. Researchers found that 50% of males and 34% of females did not feel confident in sex refusal. In a multivariate analysis, being female, being older in age and having close parental supervision predicted increased sex refusal skills for these Lebanese adolescents [73]. In 2006, USA researchers [74] conducted a study using data from the Add Health school-based study of 20,745 7th to 12th graders from 80 high schools exploring personal control, self-efficacy in sexual negotiation and contraceptive risk by gender. These researchers found that personal control and self-efficacy in sexual negotiation were significantly associated with safer sex behavior. This relationship was more important among girls than boys [74].

Associations found between difficulty in condom effectiveness behavior and lower life satisfaction may be explained in part by previous research involving sexual risk behaviors and other (non-emotional) forms of self-efficacy [20,21,72,75] and emotions [13,15,76] among adolescents. Sionean and colleagues [21] found that adolescents with higher self-efficacy to negotiate safer sex and low perceived partner-related barriers to condom negotiation were 2.5 times more likely to refuse unwanted sex than adolescents reporting low safer-sex self-efficacy and high partner-related barriers. Similar to the associations of low perceived difficulty for condom use and higher LS for Black adolescents in our study, DiIorio and colleagues [75] found that confidence in putting on a condom was related to likely condom use for adolescents.

Results for condom use with a partner after drug or alcohol use suggests that females had greater confidence than males for this perceived difficulty variable ($p < 0.0001$). These results are similar to other studies; however the literature reports conflicting results for gender, substance use before sexual intercourse and adolescent condom use associations [77,78]. In 2007, Parkes and colleagues [79] conducted a study in the UK among 1,322 Scottish public school adolescents at ages 14 and 16 exploring associations between adolescent substance use and condom use. These researchers found that the use of two to three substances increased the risk of non-condom use and that females were more likely to report not using condoms. Females in this study were more likely to drink alcohol regularly and males more likely to use cannabis regularly [79]. In a somewhat recent study [78], Michigan researchers investigated the relationship among psychological distress (negative emotions), substance use, and HIV/STI risk behaviors in 850 younger adolescents from a mid-sized town. From an ethnically diverse sample, researchers found greater psychological stress associated with increased sexual intercourse frequency, decreased condom use, and an increased number of partners. Substance use in this Michigan study fully mediated the relationship between psychological distress and intercourse frequency and condom use, and partially mediated the relationship between psychological distress and number of sexual partners [78].

African American males consistently report higher rates of risky sexual behavior than African American females [5,6] and our findings for males compared to female adolescents could be the result of differences in sexual risk behavior prevalence by gender. These differences could also be the result of varying styles of regulating emotions and emotionally (life satisfaction) driven behaviors during adolescence according to previous studies that included Black and White adolescents [80,81].

Three potentially important pathways are noted in understanding why low life satisfaction was associated with perceived difficulty in performing HIV/AIDS preventive behaviors. First, when individuals are placed in situations where they are required to meet highly valued standards (e.g., ability to discuss sexual matters; negotiate condom use; refuse sexual intercourse) a low sense of affect regulation may lead to anticipatory apprehension, thereby lowering self-efficacy (emotional self-efficacy/life satisfaction) [29]. This is especially important if an individual's personal performance standards are set much higher than their perceived efficacy to attain them. Second, a low sense of affect regulation may obstruct the benefits that safer sex behavior or abstinence from sex offers adolescents for forming positive relationships with others that enable individuals to manage stressful situations [29]. Finally, low life satisfaction regarding the difficulty to have control over negative thoughts and feelings may inhibit youth in a variety of ways and may lead to increased anxiety and depression [30] and increased sexual risk behaviors [29].

Limitations

Study results should be interpreted in light of limitations. Recruitment from four midsized cities in two geographical regions is not totally representative of African American adolescents or other races/ethnicities. Future studies should examine whether results generalize to other sociodemographic groups. Second, additional indicators of SES would have provided a more precise estimation of participants' SES. However, eligibility for the

free/reduced-price school lunch program has been moderately correlated with other indicators of SES. For example, eligibility for free/reduced-price school lunch was significantly negatively correlated with both median income ($r = -0.50$) and mean education level ($r = -0.40$) by zip code in a predominantly African American adolescent sample [82]. Third, given the large sample size, it is possible that some of the smaller correlations may be *statistically* significant and yet not clinically important. Thus, future intervention-based research should examine the clinical relevance of the impact of increased life satisfaction on perceived ability and actual performance of HIV/AIDS preventive behaviors. Fourth, we did not collect data on adolescents who were recruited and chose not to participate in our study and therefore cannot determine differences from those who did and did not participate. Fifth, these data were cross-sectional, which limits causal inferences. Finally, these data are from a single source, which could lead to shared method and source variance bias. Nonetheless, data were collected using ACASI, known to be reliable among adolescents and demonstrate decreased socially desirable responding for sensitive topics [83]. Study strengths include: the large sample ($N=1,658$) for data analysis; data collection via ACASI; sampling technique; reliability of the life satisfaction and perceived difficulty of performing HIV/AIDS preventive behavior scales; number and types of perceived difficulty variables used; and data analysis by gender.

Conclusion

Results have implications for the design of sexual risk reduction interventions, in particular, the use of a theoretical framework to guide development and implementation. In this regard, Social Cognitive Theory is a framework proven effective in sexual risk reduction for adolescents [19,54,55]. Successful interventions often incorporate peer educators; modeling preventive behaviors through activities such as role play that help adolescents recognize stimuli that trigger unsafe sexual behaviors; and cognitive rehearsal for enhanced confidence in initiating safer-sex conversations; negotiating safer sex; and skills for refusing unsafe sexual encounters [84]. Additionally, condom demonstrations to enhance condom application skills; techniques for effective partner communication; and condom negotiation to increase self-efficacy with regard to safer sexual behavior are components of successful sexual risk reduction interventions [16,17,19,54,55].

In regard to increasing life satisfaction (positive emotions) for reductions in adolescent sexual risk-taking behaviors, experts suggest skills necessary for navigating the challenges of the immediate social environment [85-88]. A basic set of emotional self-efficacy skills for adolescents could include: developing an awareness of one's emotional state; skills for discerning emotions in others; skills in using the language and vernacular of emotion and expression in a culturally competent manner; developing the capacity for empathy and sympathy involving the emotions of others; skills in recognizing that inner emotional state does not need to translate to outer emotional expression; developing a capacity for managing stress; and developing the ability to recognize that the formation of relationships, to some degree, is determined by the level of emotional genuineness of expression and the degree of balance within a relationship [85-88]

These skills and strategies are adaptive and assist the adolescent to: reach goals; cope with life challenges; manage emotional arousal for effective problem solving; discern what others feel and to respond sympathetically as the situation is presented; and recognize how emotion communication and self-presentation affect relationships [85]. More importantly, in regard to effective learning for improved emotional self-efficacy for performing HIV/AIDS preventive behavior is skill development to the degree where an adolescent can begin to trust their ability to reach their goals when faced with emotion-laden sexual interactions with others [85-88].

Future research and practice needs to address mechanisms that might elucidate gender differences in relationships between emotional self-efficacy and sexual risk behavior in African American adolescents. For example, sexual risk behavior may address different psychosocial needs in adolescent females versus males and for African American adolescents versus Caucasians and others [80,81,89]. Females tend to show greater needs for intimate relationships [90-91] which are related to adolescent mental health and life satisfaction. African American adolescents tend to begin sexual intercourse at earlier ages, and involve more partners with males reporting higher prevalence rates for both behaviors [5,6]. Adolescent sexual risk reduction intervention research should consider enhancing the perceived ability in performing HIV/AIDS preventive behaviors, life satisfaction and emotional self-efficacy as program components for male and female adolescents of all racial/ethnic backgrounds.

Acknowledgment

This study was conducted through the iMPPACS network supported by the National Institutes of Mental Health (Pim Brouwers, Project Officer) at the following sites and local contributors: Columbia, SC (MH66802; Robert Valois [PI], Naomi Farber, Andre Walker); Macon, GA (MH66807; Ralph DiClemente [PI], Gina Wingood, Laura Salazar, Rachel Joseph, Delia Lang); Philadelphia, PA (MH66809; Daniel Romer [PI], Sharon Sznitman, Bonita Stanton, Michael Hennessy, Susan Lee, Eian More, Ivan Juzang, and Thierry Fortune); Providence, RI (MH66785; Larry Brown [PI], Christie Rizzo, Nanetta Payne); and Syracuse, NY (MH66794; Peter Vanable [PI], Michael Carey, Rebecca Bostwick).

References

1. Valois, RF.; Kerr, JC.; Kammermann, SK. Life Satisfaction and Adolescent Health Risk Behaviors. In: Sarracino, F.; Mikucka, M., editors. *Life Satisfaction: Perceptions, Social Influences and Implications for Long-Term Health*. Nova Science Publishers; Hauppauge, New York: 2014. p. 21-29.
2. Valois RF. Promoting adolescent and school health: perspectives and future directions. *Am J Health Educ.* 2003; 34(6):314–328.
3. Dryfoos JG. Preventing high risk behavior. *Am J Public Health.* 1991; 81:157–158. [PubMed: 1990850]
4. Kolbe LJ. An epidemiological surveillance system to monitor the prevalence of youth behaviors that most affect health. *J Health Educ.* 1990; 21(6):44–48.
5. CDC-Center for Disease Control and Prevention. *MMWR Youth Risk Behavior Surveillance—United States, 2011*. *MMWR.* 2012; 61(4):4–44.
6. CDC-Center for Disease Control and Prevention. *MMWR Youth Risk Behavior Surveillance—United States, 2013*. *MMWR.* 2014; 63(4):5–45.
7. Hall HI, Song R, Rhodes P, Prejean J, An Q, Lee LM, et al. Estimation of HIV incidence in the United States. *JAMA.* 2008; 300(5):520–529. [PubMed: 18677024]

8. CDC-Centers for Disease Control and Prevention. Racial/ethnic disparities in diagnoses of HIV/AIDS—33 states, 2001–2005. *MMWR*. 2007; 56:189–193. [PubMed: 17347642]
9. CDC-Centers for Disease Control and Prevention. [Accessed August 13, 2013] HIV Among African Americans Fact Sheet. 2013. Available at: http://www.cdc.gov/hiv/topics/aa/pdf/HIVamong_African_Americans_final.pdf
10. CDC-Centers for Disease Control and Prevention. [Assessed August 12, 2013] HIV Deaths for all races/ethnicities, both sexes, 2010, adults and adolescents, all transmission categories. NCHHSTPAtlas. 2013. Available at: <http://gis.cdc.gov/GRASP/NCHHSTPAtlas/main.html>
11. CDC-Centers for Disease Control and Prevention. [Assessed August 10, 2013] HIV and AIDS among African-American Youth. 2010. Available at: <http://www.cdc.gov/nchhstp/newsroom/docs/HIVamongBlackYouthFactSheet-FINAL-508c.pdf>
12. CDC-Centers for Disease Control and Prevention. Human immunodeficiency virus (HIV) risk, prevention, and testing behaviors – United States, National HIV Behavioral Surveillance System: men who have sex with men, November 2003–April 2005. *Surveillance Summaries*, July 7, 2006. *MMWR*. 2006; 55(SS-6)
13. Blinn-Pike L, Berger TJ, Hewett J, Oleson J. Sexually abstinent adolescents: an 18 month follow-up. *J Adolesc Res*. 2004; 19(5):495–511.
14. Buhi ER, Goodson P. Predictors of adolescent sexual behavior and intention: a theory-guided systematic review. *J Adolesc Health*. 2007; 40:4–21. [PubMed: 17185201]
15. Collazo AA. Theory-based predictors of intention to engage in precautionary sexual behavior among Puerto Rican high school adolescents. *J HIV/AIDS Prev Child Youth*. 2004; 6(1):91–120.
16. Crosby RA, DiClemente RJ, Wingood GM, Cobb BK, Harrington K, Davies SL, et al. Condom use and correlates of African American adolescent females' infrequent communication with sex partners about preventing sexually transmitted diseases and pregnancy. *Health Educ Behav*. 2002; 29:219–231. [PubMed: 11942716]
17. Crosby RA, DiClemente RJ, Wingood GM, Sionean C, Cobb BK, Harrington K, et al. Correct condom application among African American adolescent females: The relationship to perceived self-efficacy and the association to confirmed STDs. *J Adolesc Health*. 2001; 29:194–199. [PubMed: 11524218]
18. DiClemente RJ, Wingood GM, Crosby RA, Cobb BK, Harrington E, Davies SL. Parent-adolescent communication about sexuality-related topics and adolescents' risky sexual behavior, communication with sex partners, and self-efficacy to discuss sexuality-related issues with sex partners. *J Pediatrics*. 2001; 139:407–412.
19. DiClemente RJ, Crittenden CP, Rose E, Sales JM, Wingood GM, Crosby RA, et al. Psychosocial predictors of HIV-associated sexual behaviours and the efficacy of prevention interventions in adolescents at-risk for HIV infection: what works and what doesn't work. *Psychosomatic Medicine*. 2008; 70:598–605. [PubMed: 18541908]
20. Faryna EL, Morales E. Self-efficacy and HIV-related risk behaviors among multiethnic adolescents. *Cultural Diversity & Ethnic Minority Psychology*. 2000; 6:42–56. [PubMed: 10975166]
21. Sionean C, DiClemente RJ, Wingood GM. Psychosocial and behavioral correlates of refusing unwanted sex among African American adolescent females. *J Adolesc Health*. 2002; 30:55–63. [PubMed: 11755801]
22. O'Leary A, F Goodheart, LS Jemott, Boccher-Lattimore D. Predictors of safer sex on the college campus: a social cognitive theory analysis. *J Am Coll Health*. 1992; 6:263–354.
23. Williams SS, Doyle TM, Pittman LD, Weiss LH, Fisher JD, Fisher WA. Role-played safer sex skills of heterosexual college students influenced by both personal and partner factors. *AIDS Behav*. 1998; 2(3):177–187.
24. Bandura, A. *Self-efficacy: the exercise of self-control*. Freeman; New York: 1997.
25. Maddux, JE. Self-efficacy: the power of believing in you. In: Snyder, CR.; Lopez, SJ., editors. *Handbook of Positive Psychology*. London; Oxford University Press: 2002. p. 277-287.
26. Huebner ES, Antaramian SP, Hills KJ, Valois RF. A dual-factor model of mental health: toward a more comprehensive understanding of youth functioning. *Am J Orthopsych*. 2009; 80(4):463–473.

27. Diener, E.; Lucas, RE.; Oishi, S. Subjective well-being: the science of happiness and life satisfaction. In: Snyder, CR.; Lopez, S., editors. *Handbook of Positive Psychology*. Oxford University Press; London: 2002. p. 463-473.
28. Valois RF, Zullig KJ, Kammermann SK, Kershner SH. Relationships between adolescent sexual risk behaviors and emotional self-efficacy. *Am J Sex Educ*. 2013; 8:1–20.
29. Hessler D, Fainsibler-Katz L. Association between emotional competence and adolescent risky behaviour. *J Adolesc*. 2010; 33(1):1–10. [PubMed: 19560196]
30. Muris P. Relationships between self-efficacy and symptoms of anxiety disorders and depression in a normal adolescent sample. *Pers Ind Differ*. 2002; 32:337–348.
31. Frisch MB. Evidence-based well-being/positive psychology assessment and intervention with quality of life therapy and coaching and the Quality of Life Inventory (QOLI). *Soc Indic Res*. 2013 DOI 10.1007/s11205-012-0140-7.
32. Proctor CL, Linley PA, Maltby J. Youth life satisfaction: a review of the literature. *J Happiness Stud*. 2009; 10:583–630.
33. Valois RF, Zullig KJ, Huebner ES, Drane JW. Youth developmental assets and perceived life satisfaction: is there a relationship? *Applied Res Qual Life*. 2009; 4:315–531.
34. Zullig KJ, Valois RF, Huebner ES, Drane JW. Relationship between perceived life satisfaction and adolescents' substance abuse. *J Adolesc Health*. 2001; 29:279–288. [PubMed: 11587912]
35. Mazur J, Woynarowska B. Risk behaviours syndrome and subjective health and life satisfaction in youth aged 15 years. *Medycina Wieku Rozwojowego*. 2004; 8(3,Pt.1):567–583.
36. Valois RF, Zullig KJ, Huebner ES, Drane JW. Relationship between life satisfaction and violent behaviors among adolescents. *Am J Health Behav*. 2001; 25:353–366. [PubMed: 11488546]
37. MacDonald JM, Piquero AR, Valois RF, Zullig KJ. The relationship between life satisfaction, risk-taking behaviors and youth violence. *J Interpers Violence*. 2005; 20:1495–1518. [PubMed: 16210738]
38. Valois RF, Zullig KJ, Huebner ES, Drane JW. Life satisfaction and suicide among high school adolescents. *Soc Indic Res*. 2002; 64(3):1–25.
39. Valois RF, Zullig KJ, Huebner ES, Kammermann SK, Drane JW. Relationship between of life satisfaction and sexual risk-taking behaviors among public high school adolescents. *J Child Fam Stud*. 2002; 11(4):427–440. 2002.
40. RCF, Sun; DTL, Shek. Life satisfaction, positive youth development, and problem behaviour among Chinese adolescents in Hong Kong. *Soc Indic Res*. 2010; 95(3):455–474. [PubMed: 20062815]
41. Kuzman M, Pavic-Simetin I, Pejnovic-Franelic I. Early sexual intercourse and risk factors in Croatian adolescents. *Coll Antropol*. 2007; 31(Supp 2):121–130. [PubMed: 17598514]
42. Coker AL, McKeown RE, Sanderson M, Davis KE, Valois RF, Huebner ES. Severe dating violence and quality of life among South Carolina high school students. *Am J Prev Med*. 2000; 19:220–227. [PubMed: 11064224]
43. Esch LM, Zullig KJ. Middle school students' weight perceptions, dieting behaviors, and life satisfaction. *Am J Health Educ*. 2008; 39:345–352.
44. Valois RF, Zullig KJ, Huebner ES, Drane JW. Relationship between perceived life satisfaction and dieting behavior among public high school adolescents. *Eating Disorders: J Treat Prev*. 2003; 11:271–288.
45. Zullig KJ, Pun SM, Huebner ES. Life satisfaction, dieting behavior, and weight perceptions among college students. *Appl Res Qual Life*. 2007; 2:17–31.
46. Valois RF, Zullig KJ, Huebner ES, Drane JW. Physical activity behaviors and perceived life satisfaction among public high school adolescents. *J Sch Health*. 2004; 74(2):59–65. [PubMed: 15077500]
47. Huebner ES, Valois RF, Suldo SM, Smith LC, McKnight CG, Seligson JJ, et al. Perceived quality of life: a neglected component of adolescent health assessment and intervention. *J Adolesc Health*. 2004; 34(1):1–9. [PubMed: 14706399]
48. Dew T, Huebner ES. Adolescent's perceived quality of life: an exploratory investigation. *J Sch Psychol*. 1994; 32:185–199.

49. Huebner ES, Drane JW, Valois RF. Adolescents' perceptions of their quality of life. *Sch Psych Int*. 2000; 21(3):281–292.
50. Huebner ES, Dew T. The interrelationships of positive affect, negative affect and life satisfaction in an adolescent sample. *Soc Indic Res*. 1996; 38:129–137.
51. Terry T, Huebner ES. The relationship between self-concept and life satisfaction in children. *Soc Ind Res*. 1995; 35:39–52.
52. Valois RF, Oeltmann JE, Hussey JR, Waller J. Relationship between number of sexual intercourse partners and selected health risk behaviors among public high school adolescents. *J Adolesc Health*. 1999; 25(5):328–335. [PubMed: 10551663]
53. Valois RF, Kammermann SK, Drane JW. Number of sexual intercourse partners and associated risk behaviors among public high school adolescents. *J Sex Educ Therapy*. 1997; 22(2):13–22. 1997.
54. D, Romer; S, Sznitman; RJ, DiClemente; LF, Salazar; PA, Venable; MP, Carey, et al. Mass media as an HIV-prevention strategy: using culturally sensitive messages to reduce HIV-associated sexual behavior of at-risk African American youth. *Am J Public Health*. 2009; 99(12):1–10.
55. Hennessy M, Romer D, Valois RF, Venable P, Carey MP, Stanton B, et al. Safer sex media messages and adolescent sexual behavior: 3-year follow-up results from Project iMPPACS. *Am J Public Health*. 2013; 103(1):134–140. [PubMed: 23153149]
56. Venable, PA.; Carey, MP.; Bostwick, RL.; Brown, LK.; Valois, RF.; DiClemente, RJ., et al. Community Partnerships in Adolescent HIV Prevention Research: The Experience of Project iMPPACS. In: Stanton, B.; Galbraith, J.; Kalgee, L., editors. *The Uncharted Path from Clinic-Based to Community-Based Research*. Nova Science Publishers, Inc.; New York, NY: 2007. p. 155-174.
57. Murphy DA, Durako S, Muenz LR. Marijuana use among HIV-positive and high-risk adolescents: a comparison of self-report through audio computer-assisted self-administered interviewing and urinalysis. *Am J Epidemiol*. 2000; 152:805–813.
58. Ghanem KG, Hutton HE, Zenilman JM, Zimba R, Erbeling EJ. Audio computer assisted self interview and face to face interview modes in assessing response bias among STD clinic patients. *Sex Transm Infect*. 2005; 81:421–425. [PubMed: 16199744]
59. Morrison-Beedy D, Carey M, Xin T. Accuracy of audio computer-assisted self-interviewing (ACASI) and self-administered questionnaires for the assessment of sexual behavior. *AIDS Behav*. 2006; 10:541–552. [PubMed: 16721506]
60. Turner CF, Ku L, Rogers SM. Adolescent sexual behavior, drug use, and violence: increased reporting with computer survey technology. *Science*. 1998; 280:867–873. [PubMed: 9572724]
61. Des J, Paone D, Milliken J. Audio-computer interviewing to measure risk behaviour for HIV among injecting drug users: a quasi-randomised trial. *Lancet*. 1999; 353:1657, 1661. [PubMed: 10335785]
62. Huebner ES. Correlates of life satisfaction in children. *Sch Psychol Q*. 1991; 6:103–111.
63. Huebner ES. Preliminary development and validation of a multidimensional life satisfaction scale for children. *Psychol Assess*. 1994; 6:149–158.
64. Huebner ES, Laughlin JE, Ash C, Gilman R. Further validation of the multidimensional students' satisfaction scale. *J Psychoeduc Assess*. 1998; 16:118–134.
65. Seligson J, Huebner ES, Valois RF. An investigation of a brief life satisfaction scale with elementary school students. *Soc Indic Res*. 2005; 73:355–374.
66. Huebner ES, Seligson JL, Valois RF, Suldo SM. A review of the Brief Multidimensional Students' Life Satisfaction Scale. *Soc Indic Res*. 2006; 79:477–484.
67. Valois RF, Kerr JC, Huebner ES. Relationship between peer victimization and perceived life satisfaction among early adolescents. *Am J Health Educ*. 2012; 42(5):258–268.
68. Kerr JC, Valois RF, Huebner ES, Drane JW. Life satisfaction and peer victimization among USA public high school adolescents. *Child Indic Res*. 2010; 4:127–144.
69. Valois RF, Zullig KJ, Huebner ES, Drane JW. Youth developmental assets and life satisfaction: is there a relationship? *Appl Res Qual Life*. 2009; 4:315–331.
70. Andrews, FM.; Withey, SB. Plenum; New York: 1976. *Social Indicators of Well-being: Americans' Perceptions of Life Quality*.

71. Carvajal SC, Parcel GS, Basen-Enquist K. Psychosocial predictors of delay of first sexual intercourse by adolescents. *Health Psychol.* 1999; 18(5):443–452. [PubMed: 10519460]
72. Robinson KL, Price JH, Thompson CL, Schmalzried HD. Rural junior high school students' risk factors and perceptions of teen-age parenthood. *J Sch Health.* 1998; 68(8):334–338. [PubMed: 9800184]
73. Parsegh-Koyyoumjian, S.; DeJong, J.; Afifi, R.; Zurayk, H. Bangkok, Thailand: 2010. Sexuality education and determinants of perceived sexual refusal skills among Lebanese adolescents. International Congress of Infectious Diseases.
74. Pearson J. Personal control, self-efficacy in sexual negotiations, and contraceptive risk among adolescents: the role of gender. *Sex Roles.* 2006; 54:615–625.
75. DiIorio C, Wiley WN, Soet JE, McCarty F. Sexual possibility situations and sexual behaviors among young adolescents: the moderating role of protective factors. *J Adolesc Health.* 2004; 35:11–20.
76. Stanton BF, Li X, Black MM, Ricardo I. Longitudinal stability and predictability of sexual perceptions, intentions and behaviors among early adolescent African Americans. *J Adolesc Health.* 1996; 18:10–19. [PubMed: 8750423]
77. Morrison DM, Rogers M, Faylord J, Leigh BC, Rainey D. Adolescent drinking and sex: findings from a daily diary study. *Perspect Sex Reprod Health.* 2003; 35(4):162–168. [PubMed: 12941648]
78. Elkington KS, Bauermeister JA, Zimmermann MA. Psychological distress, substance use, and HIV/STI risk behavior among youth. *J Youth Adolescence.* 2010; 39(5):514–527.
79. Parkes A, Wright D, Henderson M, Hart G. Explaining associations between adolescent substance use and condom use. *J Adolesc Health.* 2007; 40:180.e1–180.e18. [PubMed: 17259059]
80. Cooper ML, Wood PK, Orcutt HK, Albino A. Personality and the predisposition to engage in risky or problem behaviors during adolescence. *J Pers Soc Psychol.* 2003; 84(2):390–410. [PubMed: 12585812]
81. Folkman S, Chesney MA, Pollack L, Phillips C. Coping and high risk sexual behavior. *Health Psychol.* 1992; 11:218–222. [PubMed: 1396489]
82. Scarinci IC, Robinson LA, Alfano CM, Zbikowski SM, Klesges RC. The relationship between socioeconomic status, ethnicity, and cigarette smoking in urban adolescents. *Prev Med.* 2002; 34:171–178. [PubMed: 11817912]
83. Romer D, Hornik RC, Stanton B, Black M, Li XM, Ricardo I, et al. "Talking" computers: A reliable and private method to conduct interviews on sensitive topics with children. *J Sex Res.* 1997; 34:3–9.
84. DiClemente RJ, Wingood GM, Harrington KF, Lang DL, Davies SL, Hook III, et al. Efficacy of an HIV prevention intervention for African American girls: A randomized trial. *JAMA.* 2004; 292(2): 171–179. [PubMed: 15249566]
85. Buckley M, Storino M, Saarni C. Promoting emotional competence in children and adolescents: Implications for school psychologists. *Sch Psychol Q.* 2003; 18(2):177–191.
86. Halberstadt A, Denham S, Dunsmore J. Affective social competence. *Soc Dev.* 2001; 10:79–119.
87. Saarni, C. The development of emotional competence. Guilford; New York: 1999.
88. Saarni, C.; Mumme, D.; Campos, J. *Handbook of Child Psychology: Vol. 3; Social, Emotional, and Personality Development.* Wiley; New York: 1998. Emotional development: action, communication, and understanding. In: Eisenberg N; p. 237-309.
89. Silk JS, Steinberg L, Morris AS. Adolescents' emotion regulation in daily life: links to depressive symptoms and problem behavior. *Child Dev.* 2003; 74:1869–1880. [PubMed: 14669901]
90. Furman, W.; Brown, BB.; Feiring, C. Cambridge University Press; New York, NY: 1999. The development of romantic relationships in adolescence.
91. Simon RW, Barnett AE. Nonmarital romantic relationships and mental health in early adulthood: does the association differ for women and men? *J Health Soc Behav.* 2010; 15(2):168–182. [PubMed: 20617757]

Table 1
Demographics for African American adolescents in Four Mid-sized Cities in the US

	N	Percent
Sex		
Male	667	40.2%
Female	990	59.8%
Age		
13	41	2.5%
14	575	34.7%
15	466	28.2%
16	352	21.2%
17	220	13.3%
18	2	0.1%
Qualify for Free/Reduced Price School Lunch		
Yes	1215	73.4%
No	260	15.7%
Don't Know	168	10.1%
Missing	14	0.8%

Table 2
Mean scores, standard deviations, and analysis of covariance for perceived difficulty of performing HIV/AIDS preventive behavior and life satisfaction variables for African American adolescents in Four Mid-sized Cities in the US

	Females	n=991	Males	n=667	p-value	Total	N=1658
	Mean	SD	Mean	SD		Mean	SD
Perceived Difficulty of Performing HIV/AIDS Preventive Behavior							
Wait to have sex until older	4.24	1.62	3.11	1.70	<0.0001	3.79	1.74
Tell partner no sex (sex refusal)	4.50	1.57	3.28	1.80	<0.0001	4.01	1.77
Ease of getting condoms	4.65	1.65	4.98	1.43	<0.01	4.78	1.57
Ease of carrying condoms	4.62	1.62	5.14	1.31	<0.0001	4.83	1.52
Use condoms consistently with partner	5.31	1.12	5.08	1.28	<0.0001	5.22	1.19
Consistent condom use after drug or alcohol use	4.32	1.56	4.17	1.61	<0.05	4.26	1.58
Talk about condom use with boyfriend or girlfriend	5.17	1.24	4.98	1.31	<0.01	5.09	1.27
Mean Perceived Difficulty	4.57	0.96	4.39	0.96	<0.0001	4.69	0.94
Mean Life Satisfaction	5.47	1.04	5.55	1.05	<0.01	5.41	1.03

Table 3
Linear regression results for perceived difficulty in performing HIV/AIDS preventive behavior and life satisfaction for African American adolescents

	Females n=990		t-value	Males n=667		t-value	Total n=1657		t-value
	B	SE		B	SE		B	SE	
Perceived Difficulty of performing HIV/AIDS behavior									
Wait to have sex until older	0.05	0.01	6.54***	0.05	0.01	4.72***	0.05	0.01	4.18***
Tell partner no sex (sex refusal)	0.05	0.01	5.85***	0.03	0.01	2.52**	0.03	0.01	4.54***
Ease of getting condoms	0.04	0.01	5.07***	0.04	0.01	3.57**	0.04	0.01	6.14***
Ease of carrying condoms	0.04	0.01	4.95***	0.04	0.01	3.46**	0.04	0.01	6.22***
Use condoms consistently with partner	0.04	0.01	6.15***	0.04	0.01	4.34***	0.04	0.01	5.98***
Consistent condom use with partner after drug or alcohol use	0.03	0.01	4.14***	0.05	0.01	4.88***	0.04	0.01	6.09***
Talk about condom use with boyfriend or girlfriend	0.03	0.01	5.18***	0.05	0.01	5.01***	0.04	0.01	6.41***
Mean Perceived Difficulty	0.24	0.03	8.68***	0.26	0.03	7.51***	0.24	0.02	11.54***

**
p 0.01

p 0.0001 (Models control for age and socioeconomic indicator - qualification for free/reduced price school lunch)