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The Influence of Assets and Environmental Factors on Gender Differences in Adolescent Drug Use

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INTRODUCTION

Illicit drug use in adolescents remains a significant source of morbidity and mortality (Feinstein 2012) despite a decline in prevalence in recent years (Johnston, O'Malley, Bachman, & Schulenberg, 2013). The most commonly reported drug used by adolescents is marijuana and its use increased in 2012 among 10th and 12th grade students (17% and 22.9% respectively) over the rates of 2007 (14.25 and 18.8%) (Johnston, et al., 2013). Thirty day prevalence for marijuana use in 9th through 12th grade students, according to the Youth Risk Behavior Survey, reflected an increase to 23.1% in 2011 from the 20.8% reported in 2009 and males were significantly ($p < 0.05$) more likely to have used marijuana than females (25.9 vs. 20.1, respectively) in the 30 days prior to the survey (Centers for Disease Control and

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Human Participant Protection

This study underwent and received full review and approval from the institutional review board of the University of Oklahoma Health Sciences Center.

Conflict of Interest Statement:

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Prevention, 2012). Youth who use marijuana regularly may reduce their potential functioning into adulthood because a key component in marijuana can impact brain functioning and lower IQ (Johnston, et al., 2013). Youth who report drug use are also likely to report alcohol and tobacco use, as well as participation in other risky behaviors (DuRant, Smith, Kreiter, & Krowchuk, 1999).

Gender differences in drug use patterns have been documented (Blum et al., 2000; Fergus et al., 2007; Zweig, Phillips, & Lindberg, 2002). Adolescent males have always reported higher drug use rates than females (Kloos, Weller, Chan, & Weller, 2009) and theories of cause suggest that factors such as parental monitoring and peer deviance might play a significant role in explaining gender differences. However, particularly for girls, research suggests that parents are the most important influence on decisions about drug use. Parental trust is a powerful deterrent to risky behaviors primarily among female adolescents (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003). Parental disapproval of drug use plays a strong role in turning back drug use. Youth who felt their parents did not strongly disapprove of marijuana use were about six times as likely to use marijuana as youth who felt their parents would disapprove (Office of National Drug Control Policy, 2006). Girls appear to be more sensitive to conflict and related issues in the family. When parenting quality declines, or when an adolescent girl is exposed to high levels of negative emotion from parents or other family members, her developing capacities for coping and self-regulation may be overwhelmed (Call & Mortimer, 2001). Other protective factors among youth include positive attitudes toward school (Aspy et al., 2012; Substance Abuse and Mental Health Services Administration, 2003), religiosity (Substance Abuse and Mental Health Services Administration, 2004), and participation in after-school activities (Substance Abuse and Mental Health Services Administration, 2007).

Recent research suggests that girls have higher levels of substance use in early adolescence whereas boys show higher levels of use in mid-adolescence and early adulthood (Chen & Jacobson, 2012). For instance, in one study (Blum et al, 2000), among older teens, females were less frequently involved with alcohol use than were males. These gender differences in substance use could be linked to pubertal development, or differences in regards to vulnerability to social influences. Chassin et al (1986) found that whereas the number of friends who smoked was a significant predictor of smoking among girls at a younger age, the number of friends who smoked was more significant for boys at an older age. One possible explanation for these gender differences is that girls are more concerned about opinion of others regarding smoking due to perhaps of experiencing lower self-esteem compared to males (Feingold, 1994).

Other research related to substance use among adolescents has focused on physical development, pubertal status, sensation seeking, and impulsivity. These findings have shown that even though boys had greater impulsivity than girls, impulsivity was significantly associated with drug use only among girls. It is unclear though as to why impulsivity in girls but not in boys is related to greater substance use (Kong et al., 2013) Another study also supports the notion that biological differences in brain circuits and specifically sex differences in dopaminergic function during adolescence might attribute to gender differences in drug use behavior among youth (Kuhn et al., 2010). Research exploring risks

associated with youth drug use has suggested that these include both contextual factors (e.g., laws and supportive norms, availability, poverty) and individual and interpersonal factors (e.g., physiologic, family, school, and peer influences) (Hawkins, Catalano, & Miller, 1992).

The ability to overcome risks, i.e., resilience has been explored as an alternative approach to prevention programming and focuses on developing assets and resources in adolescents who are exposed to risk (Fergus & Zimmerman, 2005; Luthar, 2003; Luthar & Cicchetti, 2000; Luthar, Cicchetti, & Becker, 2000a, 2000b). Fergus and Zimmerman (Fergus & Zimmerman, 2005) have suggested that resilience is a function of both parental (e.g., monitoring, communication) and individual resources (e.g., self-confidence). Youth assets have been associated with reduced participation in risky behaviors (Aspy et al., 2004; Atkins, Oman, Vesely, Aspy, & McLeroy, 2002; Beebe et al., 2008; Benson, Leffert, Scales, & Blyth, 1998; Fergus & Zimmerman, 2005; Leffert et al., 1998; Mueller et al., 2010; Oman et al., 2004; Oman, Vesely, Aspy, McLeroy, & Luby, 2004; Vesely et al., 2004) and youth with more compared to less assets have shown less participation in alcohol use as well as early sexual activity (Blum, et al., 2000; Fergus, et al., 2007; Oman, Vesely, Tolma, & Aspy, 2007; Zweig, et al., 2002).

Assets accumulate through individual, parental, institutional/organizational, and community, as well as policy decisions and experiences. Examples of youth assets include: educational aspirations for the future, positive peer role models, and non-parental adult role models. Youth assets have been explored through analyses of cross-sectional data across developmental ages and have demonstrated protective associations for youth risk behaviors and racial/ethnic and gender differences have been identified (Aronson & Oman, 2004; Aspy, et al., 2004; Aspy et al., 2006; Doss et al., 2007; Hanson et al., 2009; Harris et al., 2007; Oman, Vesely, Kegler, McLeroy, & Aspy, 2003; Tolma et al., 2007; Tolma, Vesely, Oman, Aspy, & Rodine, 2006).

Neighborhood disorganization also has been suggested as a limiting process in the transmission of prosocial values from parents to their children resulting in higher drug use rates in those neighborhoods (Reiss, 1986; Wickrama & Noh, 2010). Social disorganization theory was first posited by Shaw and McKay (Shaw & McKay, 1942) and refined by Sampson and Groves (R. J. Sampson & Groves, 1989) and others (Bursik, 1988; Cantillon, Davidson II, & Schweitzer, 2003; R. Sampson, Raudenbush, & Earls, 1997) in their studies of delinquency and crime. The premise of the theory is that factors such as socio-economic status, residential mobility, racial heterogeneity, family structure, collective efficacy, sense of community, and informal social control can influence youth behavior through multiple pathways. For example, a study exploring individual, family and neighborhood disorganization contributions to youth marijuana use in the past year found that neighborhood-disorganization contributed about 51% to the variation in this behavior (Wright, Bobashev, & Folsom, 2007). However, another study using similar methods reported that neighborhood disadvantage was not related to youth drug use (Fagan, Wright, & Pinchevsky, 2013).

A goal of the current study was to examine prospective associations between neighborhood factors and youth drug use and to investigate if the potential effects of neighborhood

variables were influenced by the youth assets. There is much that we do not know about the protective effect of specific youth assets in regards to drug use including potential gender differences; the relative strength and stability of assets as protective agents; and how assets may interact with environmental factors to influence drug use. The purpose of the current study was to examine the prospective differential effects of 17 youth assets and 5 environmental factors and their interactions on drug use in adolescent males and females. The results can be used by practitioners involved in youth programs in their efforts to prevent drug use among youth by developing tailored interventions toward adolescent males and females.

METHODS

Sampling and data collection

Census tracts in Oklahoma City and the surrounding area (Oklahoma County) were stratified by income and race/ethnicity using 2000 census data and then randomly selected with the goal of obtaining a diverse community-based study population to follow through time. Twenty census tracts were included in the study. Door-to-door canvassing within the selected census tracts was conducted to obtain the baseline sample of youth and parents. One youth (age 12 to 17) and one parent from each consenting household participated in the study (Oman et al., 2009).

Data were collected from youth/parent pairs using Computer-Assisted Personal/Self-Interviewing (CAPI/CASI) procedures conducted in their homes by two-person interviewing teams. Youth completed the risk behavior items in private using the computers with wav sound files and headphones if necessary to minimize any potential reading problems. Five waves of data were collected annually from the participants beginning with the baseline survey conducted in 2003/2004 and concluding in 2007/2008. A total of 1,111 youth/parent pairs participated in the study with a response rate of 61% (The American Association for Public Opinion Research, 2004). The wave 5 response rate was 93% (1036/1111). The response rate across all five waves (i.e., valid youth interview at each of the five waves) was 89% (986/1111).

Measures—Time constant demographic variables reported by the youth and included in the statistical modeling were: age at baseline (12-13, 14-15, 16-17 years), race/ethnicity (Non Hispanic White or Black, Hispanic, Non Hispanic Other) and family structure. Family structure was assessed at each interview. At baseline the response options were one- or two-parent household; at subsequent waves, the youth could respond “independent” if they had lived alone for at least 6 months. If a youth consistently reported one-parent household the time constant family structure was coded as ‘one parent’; if youth consistently reported two-parent household, the variable was coded ‘two parent’; for youth who either reported both one and two parent over the 5 data collection periods or reported ‘independent’ before the age of 18, the variable was coded ‘inconsistent’. The parent reported variables of parental income (<\$35,000, \$35,000-\$62,000, >\$62,000) and education (both parents less than high school, at least one parent high school or GED or some college, at least one parent bachelor's degree) were time-varying and lagged in all models.

Assets: Seventeen youth assets were assessed via multi-item constructs with established validity and reliability. Seven assets operated at the individual level, four at the family level, and six at the community level. The asset constructs were conceived and developed based on literature reviews, our previous research, and on psychometric testing (Kegler, Rodine, Marshall, Oman, & McLeroy, 2003; Oman et al., 2002; Oman, Vesely, Tolma, Aspy, & Marshall, 2010). Items representing each asset were summed and divided by the number of items to create a score ranging from 1 (almost never/strongly disagree/very low participation in positive event or behavior) to 4 (almost always/strongly agree/very high). Assets were reported as present (1) or absent (0) on the basis of youth mean responses to the items included in the asset scale. Items comprising each scale were generally scored from 1 to 4 (4 being the most positive response) and an individual was said to have the asset if the individual's mean score was 3 or higher. These cut points indicated that the positive behaviors were reported as “usually or almost always,” “very important or extremely important” or “agree or strongly agree.” The reliability of the asset constructs was very good (Cronbach's alphas $>.70$ for 11 assets, $>.60$ and $.70$ for four assets, and $>.55$ and $.60$ for two assets). A total asset score was computed by adding together all 17 individual asset scores (ranging from 17 to 68). The interquartile range for the total asset score is approximately 8 and therefore a change of 4 points in the total asset score was deemed to be relevant. Therefore when the odds ratio (OR) is interpreted for total asset score, it will compare the odds for youth that have a 4 point change instead of a 1 point change that will be used for individual assets.

Neighborhood Context: Neighborhood context was assessed annually by trained raters who conducted windshield tours of each census tract included in the study. The objective assessment of the neighborhood was assessed via the “Broken Windows (BW)” survey which was adapted from previous research (Cohen et al., 2000; Wilson & Kelling). The survey describes neighborhoods according to the condition of the dwellings, and the amount of trash, graffiti, and abandoned cars. The “BW” survey score ranged from 0 (neighborhood in poorer condition) to 12 (neighborhood in better condition). The Broken Windows score was analyzed as a categorical variable with four levels: 1 to <7 (low) versus 7 to <9 (middle-low) versus 9 to <11 (middle) versus 11 to 12 (high).

Neighborhood social processes: Five neighborhood social process variables were measured via data from the parent interviews. All of the variables were multi-item constructs that were created by summing the responses to the items that represented each construct and dividing by the number of items. In waves 2-5, if the youth was independent or if a parent was unavailable or unwilling to participate, the youth answered the parental portion of the survey. All neighborhood social processes variables that were answered by the youth were excluded from this analysis.

Neighborhood concerns related to crime and safety and to services were assessed. Possible responses for the neighborhood concern questions ranged from one (strongly agree) to four (strongly disagree). Some of the neighborhood concerns items were adapted from previous research and some were created by the research team (Aronson & O'Campo, 1997; Kegler et

al., 2005). Both neighborhood concern variables were analyzed as categorical variables with three levels: 1 to <2 (low) versus 2 to <3 (middle) versus 3 to 4 (high).

Neighborhood support was assessed with five items such as, Neighborhood support was analyzed as a categorical variable with three levels: 1 to <2 (low) versus 2 to <3 (middle) versus 3 to 4 (high).

Sense of community was assessed using the Psychological Sense of Community (PSOC) scale (McMillan & Chavis, 1986). PSOC was analyzed as a dichotomous variable: 1 to <3 (low) versus 3 to 4 (high).

Informal social control was assessed with five items with the responses ranging from one (very unlikely) to four (very likely). (Sampson, Raudenbush, & Earls, 1997). . Informal social control was analyzed as a dichotomous variable: 1 to <3 (low) versus 3 to 4 (high).

An environmental score was created by adding together the raw scores (ranging from 1 to 4) of the five neighborhood social processes scores and the categorical BW score (ranging from 1 to 4) and dividing by the number of variables (out of 6) that were non-missing for the youth. A youth had to have at least 3 non missing environmental variables for the environmental score to be calculated. The score ranges from 1 to 4.

Outcome Variable: Drug use was assessed by the question “During the past 30 days, did you use or do any drugs such as marijuana, inhalants, methamphetamine, speed, cocaine, crack or heroin?” which is a standard item recommended by Prevention Minimum Evaluation Data Set (Brindis, Peterson, Card, & Eisen, 1998). For the last two waves of data collection, we also asked, “Have you ever tried any of the following drugs not prescribed to you by a doctor? The list included 19 of the most common drugs by name with slang identifiers in parenthesis, e.g., “Ecstasy (XTC, MDMA).” Users were also asked the age at which they first tried this drug and how many times they had used the drug in the past 30 days.

Statistics—To evaluate the gender specific associations, analyses were performed stratified by gender. Drug use was analyzed using a marginal logistic regression model (generalized estimating equations). All five demographic variables were controlled for in all analyses with parental income and education analyzed as time-varying and lagged. Individual assets, asset score total, the six environmental variables, and the environmental score were analyzed as time-varying and lagged (e.g., asset wave 1 with no drug use at wave 2). The overall impact of the assets was assessed with the total asset score and then each asset was analyzed separately. The overall impact of the environmental variables was assessed with the environmental score and then each environmental variable was analyzed separately. Interactions between the total asset score, assets, environmental score, and the six neighborhood factors, and the youth and parent demographic variables, were analyzed. Also the interactions between the asset total score and the environmental variables were analyzed, as well as the interactions between the environmental score and the individual assets. Each asset/outcome association was analyzed separately and with the environmental score to determine if the environment influenced the relationship between the asset and drug

use. Each environmental variable/outcome association was analyzed separately with the total asset score to determine if the assets influenced the relationship between the environmental variable and drug use. A diagonal working covariance matrix was used as recommended by Pepe and Anderson when covariates vary over time (Pepe & Anderson, 1994). To evaluate if the asset/environmental variable and drug use relationship was significantly different between males and females, their interactions were evaluated in a non-stratified model using the full sample. Alpha was set at 0.05 for the evaluation of the relationship between drug use and the assets/environmental variables as well as the interaction of interest between gender and the assets/environmental variables in the full sample. The alpha for the evaluation of all other interactions was set at 0.005 to control type I error.

RESULTS

Demographics

Among the 1093 youth included in the baseline analysis, 53% were female. The mean age was 14.3 years ($SD = 1.6$) and the youth were 40% Non-Hispanic White, 28% Hispanic, 24% Non-Hispanic Black, and 9% Non-Hispanic other (Table 1). Among the youth, 28% had at least one parent with a college degree; 57% consistently lived in two parent households. Demographics between females and males were similar.

At baseline 1111 youth were interviewed. The analysis lagged the demographics, assets, and neighborhood variables at wave 1 with the drug outcome at wave 2 and then wave 2 with wave 3, etc., resulting in four time points for data analysis. Over these 4 time points 1093 youth (574 females, 519 males) were in the analysis. For each time point the samples sizes for females were: 560, 549, 545, and 548; and for males: 508, 501, 484, and 474. There were no missing data for youth age, gender, or race/ethnicity or family structure. At baseline there were no missing values for parental education. Parental education was missing 43 times in subsequent waves; in these cases parental education from a prior wave was carried forward.

The same assets were generally weaker or stronger for *both* males and females at baseline (Table 2). The assets with lower means (weaker) were community involvement, family communication, use of time (groups/sports), and use of time (religion). The assets with higher means (stronger) were cultural respect, educational aspirations for the future, and parental monitoring. Although the general asset strength patterns were similar for both, females consistently had slightly higher individual asset means as compared to males.

Figure 1 contains the graph of the percent of males and females reporting use of illegal drugs across the five waves of the study. The percentage of youth drug use increased from baseline to wave 5 (4 years after baseline) for both females and males. The percentage of drug users was slightly higher in males at baseline, and rates increased similarly for both sexes until Wave 5 when drug use among females decreased. Although rates of increase stabilized for both groups from Wave 4 to Wave 5, males (26%) and females (19%) differed significantly (Z-test, $p < 0.01$). In Wave 4, there were 170 participants who reported yes to both ever trying a drug not prescribed by doctor and yes to use in last 30 days. From these, the most commonly reported drugs were marijuana (160/170=94%), pain killers

(83/170=49%), ecstasy (57/170=34%), psychedelic (47/170=28%), sedatives (66/170=39%), tranquilizers (65/170=38%), and cocaine (57/170=34%).

Relationship between assets and environmental variables, and no drug use

Females—Fifteen assets as well as the total asset score were prospectively related with no drug use (Table 3). Three interactions occurred between assets and demographic characteristics. The General Aspirations for the Future asset was significantly associated with no drug use for both the younger and older age groups (OR=3.04, 95% CI=1.68, 5.50; OR=2.09, 95% CI=1.25-3.49 respectively), but not for the 14-15 year old females. The General Self Confidence asset interacted with race/ethnicity and was significantly associated with no drug use only for Non-Hispanic Black females (OR=3.57, 95% CI=2.01, 6.36). Finally, Parental Monitoring was associated with a higher odds of no drug use (OR= 1.55, 95% CI=1.19, 2.02; OR=2.90, 95% CI=1.99, 4.23) only for females whose parents reported at least one had a high school degree or some college or at least one had a college degree at baseline respectively.

The only environmental factor prospectively associated with no drug use for females was Neighborhood Support that interacted with age (data not shown). Females with middle compared to low neighborhood support had a higher odds of no drug use (OR=2.77, 95% CI=1.47-5.21) only if they were 16-17 years old at baseline.

Males—Sixteen assets as well as the total asset score were prospectively related with non-tobacco use (Table 3). The Community Involvement asset was significantly associated with no drug use for Non Hispanic Whites (OR=1.90, 95% CI=1.34, 2.68) and youth of other non Hispanic race/ethnicities (OR=6.01, 95% CI (1.96, 18.47). These other 15 odds ratios ranged from a low of 1.29 (95% CI=1.10, 1.51) for the Use of Time (group/sports) asset to 2.06 (95% CI=1.67, 2.55) for the Positive Peer Role Models asset. There were no environmental factors significantly, prospectively associated with no drug use for males. The associations for males between the assets and no drug use changed little after controlling for the environmental score; the association between the environmental score and no drug use changed little after controlling for the individual assets (data not shown).

DISCUSSION

This longitudinal study investigated associations between 17 youth assets (and a total assets score), neighborhood environment, and no drug use in a community-based random sample of racial/ethnically-diverse youth with the goal of exploring potential differences between females and males. Assets were categorized into three areas representing potential mechanisms of action including individual, family, and community (McLeroy, Bibeau, Steckler, & Glanz, 1988). The longitudinal design of the study and the inclusion of multi-item, psychometrically sound asset measures provide strong evidence that assets are critical for youth to remain drug free not only for one year but as long as 4 years.

Drug use in this sample followed the general societal trend of an age related increase for both males and females and the rate of increase was similar for both sexes until Wave 5 when it decreased for females. These results suggested that, in general, the same assets were

stronger or weaker for both males and females, although females consistently reported higher individual assets means as compared to males.

For both males (16 assets) and females (15 assets), there were numerous assets that were associated with no drug use. The community assets (6) were significantly associated with no drug use for both males and females as were all of the four family-level assets. This is the first study, to the best of our knowledge, documenting that community factors such as non-parental adult role models, community involvement, and school connectedness can play an important role in preventing youth from using drugs prospectively. One previous study has recognized the importance of school connectedness especially for males in as a potential influence in reducing drug use (Most research in the past has focused on peer influence and parental monitoring, factors that we also identified to be important in protecting youth from using drugs.

In general, the individual-level assets and no drug use associations were more complicated for females than males in that for females; there were 2 interactions indicating that these assets were not universally protective for females, although they were for males. The Cultural Respect asset was not related to drug use for either males or females despite its high prevalence in both groups. In addition, the total asset score was significantly protective from drug use for both males and females.

These data suggest that both males and females are likely to benefit from prevention programming that focuses on asset building and that there may also be gender differences in regard to asset/risk behavior associations (Mueller, et al., 2010). Moreover, asset building could focus not only on promoting individual based assets such as making responsible choices, but also on promoting assets at the inter-personal (e.g., family and peer influence) and community/policy levels as guided by the Social Ecological Model (McLeroy, et al., 1988). Positive associations between parental monitoring skills and positive peer role models and risk behavior avoidance including drug use have been previously evaluated (DiClemente et al., 2001; Fergus & Zimmerman, 2005; R.F. Oman, et al., 2004) and were supported by the results of this study.

It was surprising that drug use by males and females was not significantly influenced by neighborhood conditions, and the protective effects of assets from drug use did not change in the presence of the neighborhood factors. Previous research by Sampson (R. Sampson, et al., 1997) and Bursik (Bursik, 1988) suggested that social disorganization theory was important for understanding youth risk behaviors, specifically crime and violence (Haegerich, Oman, Vesely, Aspy, & Tolma, 2013). Given the purposive sampling of both high and low socio-economic groups in this study, it is possible that there were insufficient numbers in the sub-samples to detect such a relationship.

Limitations

When measures of illegal or embarrassing behaviors are obtained through self report, there is always a chance that responses (especially the use of illicit drugs) may be modified by the need for youth to provide socially acceptable answers. However for all risk behavior questions, youth were left alone in the room and read the items (or heard them on

headphones) and entered their answers into a computer without anyone seeing their responses, thus lessening the likelihood of pressure to provide socially acceptable responses (Johnson et al., 2001). The moderately low response rate (61%) may raise questions about the generalizability of the results. However, when the racial/ethnic and parental income results from the sample were compared to census data from the same neighborhoods by zip codes, no significant differences were found.

Conclusions

This study confirms and extends previous work regarding youth drug use by recognizing the importance of the protective aspect of assets for both males and females and also in identifying assets that are differentially protective for specific sub-groups, most often in females. Prevention programs targeting youth drug use may be informed by these differences and focus on those assets that are more likely to impact the drug use behaviors specific to males or females.

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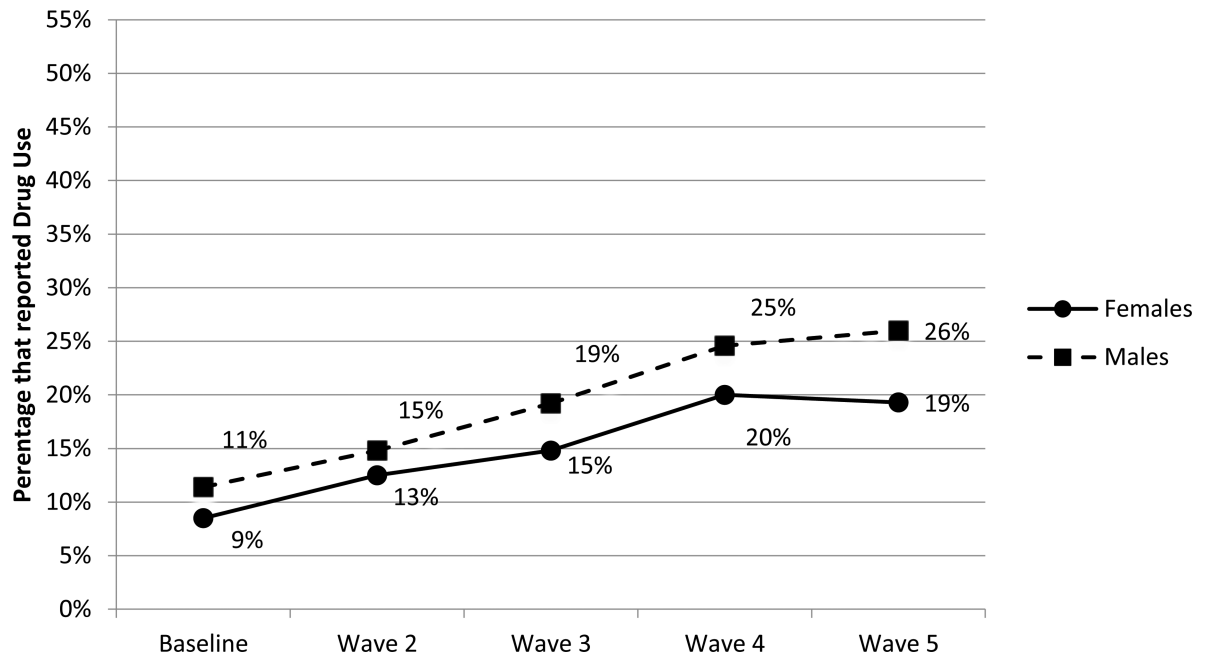


Figure 1.
Drug Use Percentage for Females and Males from Baseline to Wave 5

Table 1

Baseline demographic characteristics of the total sample, females, and males (n=1,055)

Variable	Response	Total Sample (N=1,093) n (%)	Gender	
			Females (n=574) n (%)	Males (n=519) n (%)
Age in years (mean, sd)		14.3 (1.6)	14.4 (1.6)	14.2 (1.6)
Race/Ethnicity	Non-Hispanic Black	257 (23.5%)	132 (23.0%)	125 (24.1%)
	Non-Hispanic White	436 (39.9%)	228 (39.7%)	208 (40.1%)
	Hispanic	302 (27.6%)	161 (28.0%)	141 (27.2%)
	Non-Hispanic Other	98 (9.0%)	53 (9.2%)	45 (8.7%)
Parent Education	both < HS	176 (16.1%)	92 (16.0%)	84 (16.2%)
	one HS/no college	612 (56.0%)	323 (56.3%)	289 (55.7%)
	at least 1 college	305 (27.9%)	159 (27.7%)	146 (28.1%)
Family Structure	Two Parent	630 (57.6%)	329 (57.3%)	301 (58.0%)
	One Parent	235 (21.5%)	128 (22.3%)	107 (20.6%)
	Inconsistent	228 (20.9%)	117 (20.4%)	111 (21.4%)

Table 2

Descriptive statistics for youth assets and environmental variables by gender at baseline.

Gender					
		Female		Male	
Variable with Sample Item	Alpha	N	Mean (sd)	N	Mean (sd)
Total Asset Score		560	52.88 (5.6)	508	52.07 (5.9)
Individual-level Assets					
Responsible Choices <i>You can say no to activities that you think are wrong.</i>	.67	560	3.50 (0.52)	508	3.36 (0.59)
Educational Aspirations <i>How important is it to your family that you continue your education after high school?</i>	.61	560	3.61 (0.48)	508	3.53 (0.56)
General Aspirations for the Future <i>What are the chances that when you are an adult you will be successful in whatever you choose to do?</i>	.68	560	3.39 (0.44)	507	3.27 (0.50)
General Self Confidence <i>I can solve most problems if I invest the necessary effort.</i>	.64	560	3.23 (0.48)	508	3.28 (0.49)
Religiosity <i>How important is it to you to be able to rely on religious teachings when you have a problem?</i>	.86	560	3.47 (0.62)	508	3.30 (0.72)
Cultural Respect <i>You respect the beliefs of people even if they are of a different race.</i>	.74	560	3.60 (0.44)	508	3.50 (0.47)
Good Health Practices (exercise/nutrition) <i>It is important to you to maintain a healthy body weight.</i>	.78	560	2.96 (0.69)	508	3.08 (0.68)
Family-level Assets					
Family Communication <i>How often do you feel comfortable talking to your parent(s) about personal matters?</i>	.74	560	2.92 (0.71)	508	2.76 (0.67)
Relationship with Mother <i>How close do you feel to your mother?</i>	.86	559	3.36 (0.63)	501	3.51 (0.51)
Relationship with Father <i>How close do you feel to your father?</i>	.92	504	3.01 (0.84)	476	3.19 (0.79)
Parental Monitoring <i>My parents know where I am after school.</i>	.83	560	3.63 (0.58)	508	3.48 (0.63)
Community-level Assets					
Non-Parental Adult Roles <i>Most of the adults you know are good role models for you.</i>	.55	560	3.24 (0.47)	508	3.17 (0.50)
Community Involvement <i>You volunteer on a regular basis to help others in your community.</i>	.82	560	2.18 (0.80)	508	1.97 (0.71)
Positive Peer Role Models <i>Do most of your friends follow the rules their parents make for them?</i>	.77	560	3.01 (0.67)	508	2.92 (0.66)
Use of Time - Group/Sports <i>You participate in an organized school activity outside of class.</i>	.74	556	2.33 (0.90)	507	2.36 (0.91)
Use of Time – Religion <i>Last month I participated in religious or spiritual activities with at least one other person.</i>	.58	560	2.67 (0.82)	508	2.56 (0.87)
School Connectedness <i>You feel close to people at your school.</i>	.72	554	3.15 (0.57)	504	3.11 (0.54)
Environmental Score		560	2.75 (0.48)	508	2.76 (0.48)
Broken Windows Neighborhood environment rated according to the condition of the dwellings, and the amount of trash, graffiti, and abandoned cars.	.83*				

Gender					
Variable with Sample Item	Alpha	Female		Male	
		N	Mean (sd)	N	Mean (sd)
Low		160	28.6%	153	30.1%
Middle-Low		125	22.3%	117	23.0%
Middle-High		156	27.9%	122	24.0%
High		119	21.3%	116	22.8%
Neighborhood Concerns: Services <i>There is poor police protection in your neighborhood.</i>	.69				
Low		67	12.0%	55	10.8%
Middle		143	25.5%	124	24.4%
High		350	62.5%	329	64.8%
Neighborhood Concerns: Crime/Safety <i>There is crime and violence in your neighborhood.</i>	.87				
Low		118	21.3%	91	18.3%
Middle		203	36.7%	194	39.0%
High		232	42.0%	213	42.8%
Neighborhood Support <i>About how often do you and people in your neighborhood watch over each other's property?</i>	.77				
Low		206	36.9%	205	40.4%
Middle		275	49.2%	235	46.3%
High		78	14.0%	68	13.4%
Sense of Community <i>People in this neighborhood get along with each other.</i>	.84				
Low/Middle		158	28.3%	155	30.8%
High		400	71.7%	348	69.2%
Informal Social Control <i>How likely is it that your neighbors will become involved if children are skipping school and hanging out on the street corner?</i>	.82				
Low/Middle		146	26.4%	131	26.1%
High		406	73.6%	370	73.9%

* Spearman correlation for test-retest

Table 3

Adjusted odds ratios for the assets and environmental variables on no drug use adjusted for youth age and race/ethnicity, parental income and education, and family structure by gender

Label	Gender			
	Female		Male	
	OR* (95% CI)	P-value	OR [‡] (95% CI)	P-value
Assets				
Total Asset Score (units=4)	1.45 (1.31, 1.60)	<.0001	1.45 (1.32, 1.60)	<.0001
Individual-level Assets				
Responsible Choices	1.72 (1.34, 2.23)	<.0001	1.66 (1.31, 2.09)	<.0001
Educational Aspirations	1.24 (0.97, 1.59)	0.0872	1.62 (1.30, 2.02)	<.0001
General Aspirations for the Future	Interaction		1.58 (1.21, 2.08)	0.0010
General Self Confidence	Interaction		1.47 (1.11, 1.94)	0.0076
Religiosity	1.38 (1.11, 1.70)	0.0031	1.78 (1.49, 2.13)	<.0001
Cultural Respect	1.21 (0.88, 1.66)	0.2406	1.19 (0.87, 1.64)	0.2733
Good Health Practices	1.64 (1.36, 1.97)	<.0001	1.50 (1.24, 1.80)	<.0001
Family-level Assets				
Family Communication	1.57 (1.29, 1.91)	<.0001	1.48 (1.20, 1.82)	0.0002
Relationship with Mother	1.42 (1.18, 1.73)	0.0003	1.51 (1.18, 1.94)	0.0011
Relationship with Father	1.30 (1.07, 1.57)	0.0071	1.37 (1.14, 1.65)	0.0009
Parental Monitoring	Interaction		2.05 (1.70, 2.48)	<.0001
Community-level Assets				
Non Parental Adult Role Models	2.05 (1.57, 2.67)	<.0001	1.67 (1.27, 2.19)	0.0002
Community Involvement	1.54 (1.29, 1.85)	<.0001	Interaction	
Positive Peer Role Models	2.05 (1.66, 2.53)	<.0001	2.06 (1.67, 2.55)	<.0001
Use of Time - Group/Sports	1.43 (1.20, 1.70)	<.0001	1.29 (1.10, 1.51)	0.0019
Use of Time - Religion	1.43 (1.22, 1.66)	<.0001	1.53 (1.30, 1.78)	<.0001
School Connectedness	1.49 (1.16, 1.91)	0.0018	1.82 (1.41, 2.36)	<.0001
Environmental Variables				
Environmental Score	0.83 (0.60, 1.15)	0.2694	0.87 (0.63, 1.20)	0.3959
Broken Windows				
Middle-Low vs Low	1.12 (0.78, 1.59)	0.5483	0.99 (0.70, 1.40)	0.9539
Middle-High vs Low	0.90 (0.60, 1.35)	0.5979	0.91 (0.61, 1.36)	0.6522
High vs Low	0.96 (0.57, 1.61)	0.8751	0.81 (0.51, 1.28)	0.3624
Neighborhood Concerns: Services				
Middle vs Low	0.95 (0.58, 1.55)	0.8326	1.22 (0.75, 1.99)	0.4201
High vs Low	0.83 (0.52, 1.32)	0.4222	0.92 (0.61, 1.40)	0.7101
Neighborhood Concerns: Crime/Safety				
Middle vs Low	0.81 (0.58, 1.14)	0.2289	1.07 (0.75, 1.53)	0.7116

Label	Gender			
	Female		Male	
	OR* (95% CI)	P-value	OR [‡] (95% CI)	P-value
High vs Low	0.97 (0.66, 1.43)	0.8816	0.98 (0.69, 1.41)	0.9260
Neighborhood Support				
Middle vs Low	Interaction		1.03 (0.77, 1.37)	0.8656
High vs Low			0.98 (0.62, 1.56)	0.9341
Sense of Community				
High vs Low/Middle	0.85 (0.63, 1.15)	0.2943	1.01 (0.74, 1.36)	0.9642
Informal Social Control				
High vs Low/Middle	0.87 (0.63, 1.20)	0.3999	0.99 (0.73, 1.34)	0.9338

* Adjusted for youth age and race, parental education, family structure, and the interaction between parental income and youth age

[‡] Adjusted for youth age and race, parental education, and family structure