Continuing Education Contact Hour Opportunity

Prospective Associations Between Youth Assets, Neighborhood Characteristics and No-Tobacco Use Among Youth: Differences by Gender

Eleni L. Tolma, Roy F. Oman, Sara K. Vesely, Cheryl B. Aspy, and Lindsay Boeckman

Abstract

The purpose of this study is to assess the relationship between youth assets and neighborhood environmental variables and future no-tobacco use among youth; examining differences by gender. Five waves of annual data were collected from 1111 youth randomly selected to participate in the Youth Asset Study (YAS). A marginal logistic regression model using all five waves of tobacco use, gender, and their interaction was used to compare the change in tobacco use over time between males and females. Individual assets, asset score total, the six neighborhood variables, and the environment composite score assessed at waves 1-4 were analyzed as time-varying and lagged while controlling for demographics to predict no-tobacco use at waves 2-5. Among 1093 youth (Mean age=14.3; 53% female; 40% white, 28% Hispanic, 23% African American, 9% other), the percentage of youth smoking increased significantly from baseline to wave 5 (4 years after baseline) for both females and males. Among females, sixteen assets were prospectively related with no-tobacco use whereas among males, fourteen assets were prospectively related with no-tobacco use. There were no significant differences between genders, and the neighborhood environment overall did not have an impact in the relationship between youth assets and future no-tobacco use.

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Introduction

Tobacco use remains the largest preventable cause of death and disease for both men and women. More than 1,000 people die every day by cigarette use alone (U.S. Department of Health and Human Services, 2010). Although progress has been made, approximately 25% of high-school students and adults in the U.S. continue to smoke regularly. According to a recent Youth Risk Behavioral Survey (Centers for Disease Control and Prevention, 2010a) 26% of high-school students reported current tobacco use. Overall the prevalence of tobacco use is higher among male students (29.8%) compared to female students (21.8%). Adolescents can quickly develop nicotine addiction, and the evidence shows the majority of people who begin using tobacco products on a regular basis have great difficulty breaking their nicotine dependency (U.S. Department of Health and Human Services, 2010). Therefore, it is imperative that tobacco use prevention programming focuses on youth.

Most studies comparing smoking onset between boys and girls have focused on risk factors rather than protective factors and the results have been inconsistent. For instance, one study (Tucker, Martinez, Ellicson, & Edelen, 2008) suggested there were more similarities than differences between males and females in regard to factors associated with subsequent smoking behavior during adolescence and the transition to young adulthood (e.g., pro-smoking social influence, academic performance and delinquency). On the other hand, previous studies on risk factors for smoking have found that socialization effects tend to be stronger for females (van den Bree, Whitmer, & Pickworth, 2004), whereas other studies found that delinquent behavior has been identified as a stronger predictor of experimentation and of regular smoking for males than for females (van den Bree et al., 2004). There is some evidence that low school achievement is associated with experimental smoking for males only; however, it has an impact on onset and progression to regular smoking for both genders (van den Bree et al., 2004).

Factors that may protect youth from initiating smoking have been studied less frequently. The concept of protective factors stems from the work of Fergus and Zimmerman (2005) on adolescent resilience. Researchers have identified three models of resilience: compensatory, protective and challenge. In the protective factor model assets or resources moderate or reduce the effects of a risk on a negative outcome. For instance, the relationship between poverty and violent behavior is reduced by youth with high levels of social support, which serves as a protective factor. In our case, one cross-sectional study found that general life skills were negatively associated with current and future smoking for females only. Moreover,

family management practices protected females from smoking, and a risk-taking tendency was positively linked with smoking concurrently among females only (Epstein, Botvin, & Spoth, 2003). In addition, engagement in religious activities seemed to be a stronger protective factor for young females than for males (Steinman & Zimmerman, 2004).

A concept similar to protective factors is *youth assets*. Assets are not only the positive factors that reside within an individual such as competence, coping skills, but also external to the individual such as parental support, institutional/ organizational and community experiences as well as policy decisions (Aspy et al., 2009). For instance, many adolescents who grow up in poverty exhibit positive outcomes. These adolescents may possess assets that help them avoid the negative outcomes associated with poverty and to become resilient (Fergus & Zimmerman, 2005). The youth developmental approach has been adopted by an increasing number of health-promoting initiatives (Pittman, Irby, & Ferber, 2000; Smith & Barker, 2009) and posits that the possession of assets may *simultaneously* protect youth from engaging in a variety of risky behaviors. This is extremely important, because youth risk behaviors often cluster (Flay & Allred, 2003). Therefore, understanding the unique assets that impact a specific risky behavior such as tobacco use as well as other youth risk behaviors is important for practitioners interested in comprehensive risk prevention programs.

In addition, previous studies of tobacco use focused on the impact of the social environment (i.e., peer influence, parental support) (Evans, Powers, Hersey, & Renaud, 2006); however, very few studies have examined the role of neighborhood context (i.e., structural characteristics) in the prediction of youth tobacco use (Xue, Zimmerman, & Caldwell, 2007). For example, higher levels of neighborhood poverty were associated with increased smoking for white but not black adolescents (Nowlin & Colder, 2007) and adolescents from socio-economically disadvantaged neighborhoods had significantly higher relative risks of being a light, medium or heavy smoker than those adolescents from more advantaged neighborhoods (Kaestle & Wiles, 2010).

This study is unique in that for the first time, we will extend the neighborhood dimensions beyond socio-economic measures by examining neighborhood context (physical appearance), as well as neighborhood social processes such as neighborhood support, neighborhood social control, and concerns about crime and safety. The study is also unique in that it examines the influence of multiple youth assets and tobacco use and how the associations may vary by gender and as a result of the neighborhood characteristics.

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; Oman, Vesely, Tolma, Aspy, & Marshall, 2010).

Data were collected from youth/parent pairs using Computer-Assisted Personal/Self-Interviewing 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% (Oman et al., 2009; Oman et al., 2010). 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), gender, 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 a 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 variable of parental education was time-varying and lagged in all models.

Seventeen youth assets were assessed via multi-item constructs with established validity and reliability. Seven assets operated at the individual level (i.e., Responsible choices, Educational aspirations for the future, General aspirations for the future, Religiosity, Cultural respect, and Good health practices), four at the family level (i.e. Family Communication, Relationship with mother, Relationship with father, and Parental monitoring) , and six at the community level (i.e. Non parental adult models, Community involvement, Positive peer role models, Use of time-groups/sports, Use of time-religion, and School Connectedness). All assets were measured with 4 items with the exception of the Responsible choices, General Aspirations for the future, and Non parental adult models assets which were measured with 3 items, and the Educational aspirations for the future and Use of time-religion assets which were measured with 2 items. The asset constructs were conceived and developed based on literature reviews, previous research, and on psychometric testing (Oman et al., 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 participate in positive event or behavior) to 4 (almost always/strongly agree/very high). The reliability of the asset constructs was tested using the baseline data and was found to be adequate (Cronbach's alphas >.70 for 11 assets, >.60 and ≤.70 for four assets, and >.55 and ≤.60 for two assets) (Oman et al., 2010). 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). The survey describes neighborhoods according to the condition of the dwellings, and the amount of trash, graffiti, and abandoned cars.

Two raters conducted the actual rating of the neighborhoods together while driving through the neighborhoods. Pictures of residences and neighborhoods in various conditions were taken and used as standards for rating the neighborhoods. Feedback was provided to the raters and their ratings were periodically checked by a third individual. The BW score was based on the four indices (condition of the dwellings, and the amount of trash, graffiti, and abandoned cars) which were scored separately from 0 to 3 and then aggregated to determine a neighborhood context score. The physical structure score was based on a scale that indicated the percentage of residences in a neighborhood that had no visible damage, minor cosmetic damage, minor structural damage or major structural damage. Each of these categories had additional descriptive terminology; for example, peeling paint and overgrown lawn were descriptors for a neighborhood with residences that had minor cosmetic damage. Trash and graffiti scores were calculated on a 1(none, 0%) to 5 (a lot/most, >67%) scale that also included percentages to assist in the rating of a neighborhood. The number of abandoned cars was rated on a 1(0 cars) to 4 (3 or more cars) scale. The condition of the dwellings was calculated as follows: (0=no level 3 or 4 damage, and less than 25% level 2 damage; 0.75=no level 3 or 4 damage – level 2 damage 25% to <75% damage; 1.5=no level 3 or 4 damage – level 2 damage 75% or more; 2.25=no level 4 damage, 1% or more level 3 damage; 3=1% or more level 4 damage.) In summary, the broken window score was composed of 4 equally weighted components.

The BW survey total score ranged from 0 (neighborhood in poorer condition) to 12 (neighborhood in better condition). The Spearman correlation coefficient for the test-retest reliability of the BW survey was .83 and the intraclass correlation was 0.80. The BW score was analyzed as a categorical variable with four levels that each had a fairly equal number of participants: 1 to <7 (low) versus 7 to <9 (middle-low) versus 9 to <11 (middle-high) 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.

Neighborhood concerns related to crime and safety and to services were assessed. Neighborhood crime and safety was assessed with five items such as, "There is crime and violence in your neighborhood." The Cronbach's alpha was .87. Neighborhood services were assessed with four items such as, "There is poor police protection in your neighborhood." The Cronbach's alpha was .69. 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 (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, "About how often do you and people in your neighborhood watch over each other's property?" (Buka, Brennan, Rich-Edwards, Raudenbush, & Earls, 2003). Responses ranged from one (almost never) to four (almost always). The Cronbach's alpha was .77. 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). The PSOC has been utilized in various settings including colleges, worksites, and neighborhoods (Lounsbury, & Denui, 2003; Pretty & McCarthy, 1991; Bukner, 1988). The PSOC scale included seven items such as "People in this neighborhood get along with each other." Possible responses ranged from one (strongly disagree) to four (strongly agree). Cronbach's alpha for the PSOC scale was .84. PSOC was analyzed as a dichotomous variable: 1 to <3 (low) versus 3 to 4 (high).

Finally, informal social control was assessed with five items such as, "How likely is it that your neighbors will become involved if children are skipping school and hanging out on the street corner?" (Sampson, Raudenbush, & Earls, 1997). Responses for the scale ranged from one (very unlikely) to four (very likely). The Cronbach's alpha was .82. Informal social control was analyzed as a dichotomous variable: 1 to <3 (low) versus 3 to 4 (high).

A neighborhood environment composite score was created by adding together the raw scores (ranging from 1 to 4) of the five neighborhood social processes scores and the categorical broken window 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 neighborhood environment composite score to be calculated. The score ranges from 1 to 4.

Tobacco use was assessed by the question "During the past 30 days have you used any tobacco (smoked, dipped, or chewed)?" which is a standard item used in the Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2010a).

Statistics

Chi-squares and t-tests (pooled or Satterthwaite methods depending on the equality of variance) were calculated to compare baseline demographics, assets, and environmental factors between males and females. A marginal logistic regression model using all five waves of tobacco use, gender,

and their interaction was used to compare the change in tobacco use over time between males and females. Individual assets, asset score total, the six neighborhood variables, and the environment composite score were analyzed as time varying and lagged (e.g., asset wave 1 with no-tobacco use at wave 2). All four demographic variables (i.e. youth age, race/ethnicity, family structure, and parental education) were controlled for in all analyses with education analyzed as time varying and lagged. 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 neighborhood environment variables was assessed with the environment composite score and then each neighborhood variable was analyzed separately. Interactions between the total asset score, assets, neighborhood environment composite 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 neighborhood environment variables were analyzed, as well as the interactions between the environment composite score and the individual assets. Each asset/outcome association was analyzed separately and with the neighborhood environment composite score to determine if the environment influenced the relationship between the asset and tobacco use. Each neighborhood environment variable/outcome association was analyzed separately with the total asset score to determine if the assets influenced the relationship between the asset and tobacco use. A diagonal working covariance matrix was used when covariates vary over time (Pepe & Anderson, 1994). To evaluate if the asset/neighborhood environment variables and tobacco 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 analyses of the relationship between tobacco use and the assets/neighborhood environment and possible gender interactions. The alpha was set at 0.005 for all other interactions to control type I error.

Results

Data

At baseline 1,111 youth were interviewed. Our analysis lagged the demographics, assets, and environmental variables at wave 1 with the tobacco 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 were females: 555; 550; 546; 548 and males: 508; 501; 484; 474. There were no missing data for youth age, gender, or race or family structure. There were no missing values for parental education at baseline; however in subsequent waves parental education was missing 43 times. In these cases parental education from the prior wave was carried forward.

Table 1

Baseline demographic characteristics of the total sample, females, and males (n=1,093)

			Gender		
		Total Sample (N=1,093)	Females (n=574)	Males (n=519)	
Demographic	**Response**	**n (%)**	**n (%)**	**n (%)**	**p-value**
Age in years (mean, s.d)		14.31 (1.59)	14.39 (1.58)	14.24 (1.60)	0.1251
Race/Ethnicity	Non-Hispanic Black	257 (23.5%)	132 (23.0%)	125 (24.1%)	0.9564
	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%)	0.9806
	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%)	0.7739
	One Parent	235 (21.5%)	128 (22.3%)	107 (20.6%)	
	Inconsistent	228 (20.9%)	117 (20.4%)	111 (21.4%)	

*HS=High-School

Table 2

Descriptive statistics for baseline youth assets and neighborhood environment variables by gender.

	Gender				
		Female		Male	
Label	**N**	**Mean (s.d)**	**N**	**Mean (s.d)**	**p-value**
Assets†					
Total Asset Score (units=4)	555	52.92 (5.65)	508	52.10 (5.98)	0.0218
Individual-level Assets‡					
Responsible Choices	555	3.50 (0.52)	508	3.36 (0.59)	<0.0001
Educational Aspiration	555	3.61 (0.48)	508	3.53 (0.56)	0.0140
General Aspirations for the future	555	3.39 (0.44)	507	3.27 (0.49)	<0.0001
General Self Confidence	555	3.23 (0.48)	508	3.28 (0.49)	0.0661
Religiosity	555	3.47 (0.62)	508	3.31 (0.72)	<0.0001
Cultural Respect	555	3.60 (0.44)	508	3.50 (0.47)	0.0003
Good Health Practices	555	2.96 (0.69)	508	3.08 (0.69)	0.0033
Family-level Assets‡					
Family Communication	555	2.92 (0.71)	508	2.77 (0.67)	0.0003
Relationship with Mother	554	3.36 (0.63)	501	3.52 (0.51)	<0.0001
Relationship with Father	503	3.01 (0.84)	476	3.20 (0.80)	0.0005
Parental Monitoring	555	3.63 (0.58)	508	3.48 (0.63)	<0.0001
Community-level Assets‡					
Non Parental Adult Roles	555	3.24 (0.47)	508	3.18 (0.51)	0.0481
Community Involvement	555	2.18 (0.80)	508	1.97 (0.71)	<0.0001
Positive Peer Role Models	555	3.02 (0.67)	508	2.93 (0.66)	0.0282
Use of Time - Group/Sports	551	2.32 (0.89)	507	2.36 (0.91)	0.5040
Use of Time - Religion	555	2.66 (0.82)	508	2.56 (0.86)	0.0406
School Connectedness	549	3.16 (0.56)	504	3.10 (0.54)	0.1140
Neighborhood Environment Variables					
Neighborhood Environment Composite Score‡	555	2.75 (0.48)	508	2.76 (0.48)	0.8291
	n	%	n	%	
Broken Windows					0.6808
Low	159	28.6%	154	30.3%	
Middle-Low	122	22.0%	115	22.6%	
Middle-High	154	27.7%	123	24.2%	
High	120	21.6%	116	22.8%	
Neighborhood Concerns: Services					0.7186
Low	66	11.9%	56	11.0%	
Middle	139	25.0%	122	24.0%	
High	350	63.1%	330	65.0%	
Neighborhood Concerns: Crime/Safety					0.5153
Low	114	20.8%	93	18.7%	
Middle	203	37.0%	191	38.4%	
High	231	42.2%	214	43.0%	
Neighborhood Support					0.4868
Low	204	36.8%	204	40.2%	
Middle	273	49.3%	234	46.1%	
High	77	13.9%	70	13.8%	
Sense of Community					0.3405
Low/Middle	155	28.0%	154	30.6%	
High	398	72.0%	349	69.4%	
Informal Social Control					0.9228
Low/Middle	143	26.1%	132	26.3%	
High	404	73.9%	369	73.7%	

† The score had a potential range from 17 to 68.
‡The assets and score had a potential range from 1 (i.e. almost never/strongly disagree/very low) to 4 (almost always/strongly agree/very high).

Demographics

Fifty-three percent of the participants (N=1093) included in the analysis were female. Descriptive data are shown in Table 1. There were no significant demographic differences between females and males.

At baseline, there were numerous significant differences between females and males in regard to the assets means (Table 2). In most cases the asset means were greater for the females. Scores for the environmental factors, across measures and across levels (low, middle, high), did not significantly vary between females and males.

The percentage of youth smoking increased significantly from baseline to wave 5 (4 years after baseline) for females and males ($p<.0001$ for waves 2-5 as compared to wave 1) (Figure 1). However, the increase was different for females and males (significant interaction between gender and wave; p-values 0.0155 to <0.0001); the odds of smoking were not statistically significant different for males and females at waves 1 and 2, but the odds of smoking were greater for males as compared to females for waves 3, 4, and 5.

Relationship between assets, environmental variables, and no-tobacco use.

Females. Sixteen assets as well as the total asset score were prospectively related with no-tobacco use (Table 3). One interaction was indicated. For females, parental monitoring was associated with higher odds of no-tobacco use at baseline as compared to subsequent waves although it was significant at all four waves (OR=2.51, 95% CI 1.76, 3.58; OR=1.66 95% 1.19, 2.30; OR=1.41 95% CI 1.02, 1.97; OR=1.42, 95% CI 1.04, 1.94.) The associations between the assets and no-tobacco use changed little after controlling for the environmental composite score; the association between the environmental composite score and no-tobacco use changed little after controlling for the individual assets (data not shown).

Five of the environmental factors were not prospectively related with no-tobacco use. There was one interaction between neighborhood support and youth age. Compared to youth living in neighborhoods with low support, youth living in neighborhoods with a middle amount of neighborhood support were significantly more likely to report no-tobacco use (OR=2.94, 95% CI=1.64-5.29) but only among youth who were 16-17 years old at baseline. The associations between the neighborhood environmental variables and no-tobacco use changed little after controlling for the total asset score; the association between the total asset score and no-tobacco use changed little after controlling for the neighborhood environmental variables (data not shown).

Males. Fourteen assets as well as the total asset score were prospectively related with no-tobacco use (Table 3). One interaction was identified. Responsible choices was associated with a higher odds of no-tobacco use (OR=1.82, 95% CI=1.10, 3.01; OR=2.18, 95% CI=1.62, 2.94) for youth who consistently reported living in a one- or two-parent homes, respectively. No association was observed for youth who lived in homes with inconsistent family structure. The associations between the assets and no-tobacco use changed little after controlling for the environmental composite score; the association between the environmental composite score and no-tobacco use changed little after controlling for the individual assets (data not shown).

Figure 1.

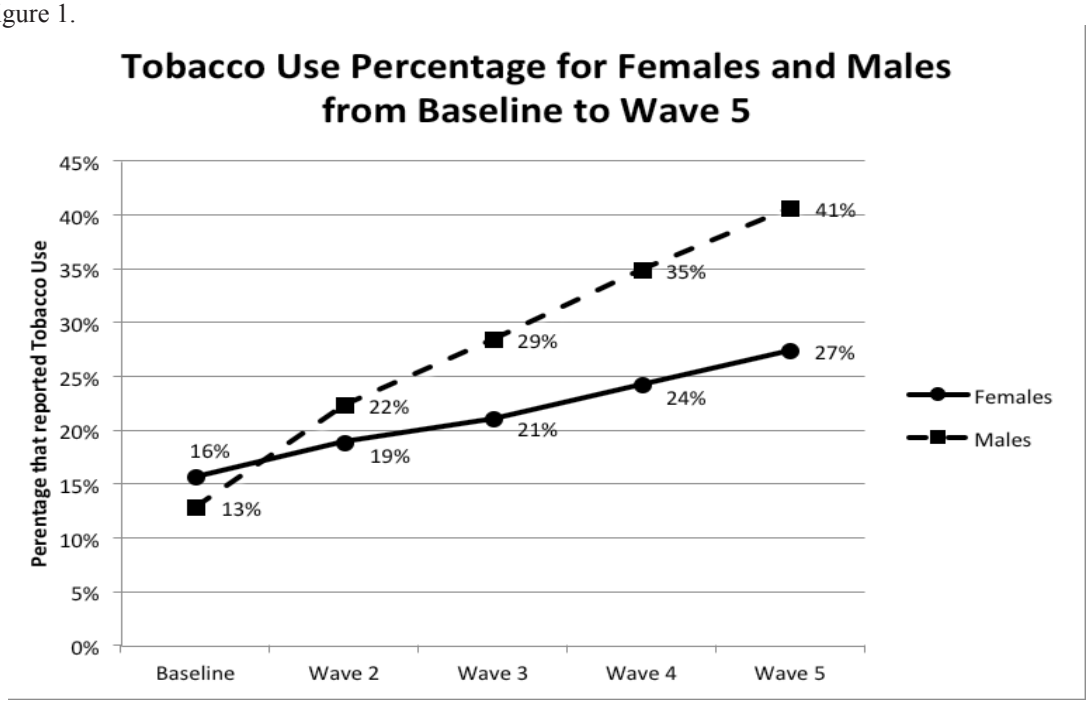

Table 3.

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

	Gender			
	Female		Male	
Label	**OR* (95% CI)**	**P-value**	**OR* (95% CI)**	**P-value**
Assets				
Total Asset Score (units=4)	**1.46 (1.31, 1.62)**	**<.0001**	**1.37 (1.25, 1.52)**	**<.0001**
Individual-level Assets				
Responsible Choices	**1.51 (1.17, 1.93)**	**0.0013**	Interaction	
Educational Aspiration	**1.50 (1.15, 1.96)**	**0.0027**	**1.55 (1.23, 1.94)**	**0.0002**
General Aspirations for the future	**1.55 (1.16, 2.06)**	**0.0028**	**1.70 (1.31, 2.22)**	**<.0001**
General Self Confidence	**1.49 (1.15, 1.93)**	**0.0029**	1.28 (0.97, 1.68)	0.0763
Religiosity	**1.54 (1.23, 1.93)**	**0.0002**	**1.55 (1.29, 1.85)**	**<.0001**
Cultural Respect	1.25 (0.91, 1.71)	0.1623	1.26 (0.95, 1.68)	0.1120
Good Health Practices	**1.53 (1.26, 1.85)**	**<.0001**	**1.45 (1.21, 1.76)**	**<.0001**
Family-level Assets				
Family Communication	**1.52 (1.26, 1.83)**	**<.0001**	**1.34 (1.08, 1.65)**	**0.0069**
Relationship with Mother	**1.45 (1.18, 1.77)**	**0.0004**	1.29 (0.98, 1.69)	0.0668
Relationship with Father	**1.29 (1.08, 1.53)**	**0.0054**	**1.31 (1.09, 1.58)**	**0.0041**
Parental Monitoring†	Interaction		**2.30 (1.89, 2.79)**	**<.0001**
Community-level Assets				
Non Parental Adult Roles	**1.78 (1.38, 2.31)**	**<.0001**	**1.53 (1.18, 1.99)**	**0.0012**
Community Involvement	**1.46 (1.24, 1.73)**	**<.0001**	**1.25 (1.05, 1.50)**	**0.0140**
Positive Peer Role Models	**1.83 (1.52, 2.21)**	**<.0001**	**2.08 (1.70, 2.53)**	**<.0001**
Use of Time - Group/Sports	**1.48 (1.26, 1.74)**	**<.0001**	**1.24 (1.07, 1.43)**	**0.0052**
Use of Time - Religion	**1.43 (1.22, 1.68)**	**<.0001**	**1.26 (1.08, 1.46)**	**0.0029**
School Connectedness	**1.48 (1.18, 1.86)**	**0.0007**	**1.88 (1.47, 2.40)**	**<.0001**
Neighborhood Environment Variables				
Neighborhood Environment Composite Score	0.85 (0.63, 1.15)	0.2828	0.98 (0.72, 1.34)	0.8909
Broken Windows				
Middle-Low vs. Low	0.99 (0.72, 1.37)	0.9597	1.15 (0.81, 1.62)	0.4414
Middle-High vs. Low	0.78 (0.54, 1.13)	0.1911	1.10 (0.74, 1.65)	0.6279
High vs. Low	0.80 (0.50, 1.28)	0.3467	0.81 (0.52, 1.27)	0.3621
Neighborhood Concerns: Services				
Middle vs. Low	1.17 (0.77, 1.77)	0.4708	1.20 (0.78, 1.86)	0.4056
High vs. Low	1.06 (0.72, 1.55)	0.7657	1.03 (0.70, 1.51)	0.8805
Neighborhood Concerns: Crime/Safety				
Middle vs. Low	0.82 (0.60, 1.12)	0.2077	Interaction	
High vs. Low	0.92 (0.66, 1.28)	0.6098		
Neighborhood Support				
Middle vs. Low	Interaction		1.01 (0.78, 1.32)	0.9345
High vs. Low			0.90 (0.61, 1.32)	0.5794
Sense of Community				
High vs. Low/Middle	0.77 (0.57, 1.03)	0.0806	1.02 (0.76, 1.38)	0.8778
Informal Social Control				
High vs. Low/Middle	0.96 (0.70, 1.31)	0.7786	1.10 (0.82, 1.49)	0.5306

*Adjusted for youth age and race/ethnicity, parental education, and family structure.
†Significant difference ($p<0.05$) between ORs for female and male data as indicated by a significant interaction between the asset and gender in the adjusted model with all youth.

The only neighborhood factor associated prospectively with no-tobacco use was neighborhood concerns about crime and safety and only for youth in two-parent homes. For youth in two-parent homes, those with middle or low levels of concern had higher odds of no-tobacco use respectively (OR=1.83, 95% CI=1.91, 2.81; OR=1.63, 95% CI=1.03, 2.57) as compared to those with high levels of concern about crime and safety. The associations between the neighborhood variables and no-tobacco use changed little after controlling for the total asset score; the association between the total asset score and no-tobacco use changed little after controlling for the neighborhood variables (data not shown).

Discussion

The purpose of this study was to examine how relationships between youth assets and no-tobacco use may vary by youth gender and how neighborhood characteristics may influence these relationships. The results suggest that for both genders emphasis should be placed on all three levels of the socio-ecological model (i.e., individual, family, and community) (McLeroy, Bibeau, Steckler, & Glanz, 1988). These include building individual assets (e.g., responsible choices, aspirations for the future), family related assets (e.g., family communication, parental monitoring and relationship with father) and community related assets (e.g., promoting positive peer role modeling, providing adult role models other than the parents, community involvement, and school-connectedness). Most previous studies that targeted young males have focused solely on individual characteristics such as risk taking behaviors and delinquency (Tucker et al., 2008; van den Bree et al., 2004). Similarly most studies involving young females have also focused on individual level assets such as promoting general life skills and socialization (Epstein et al., 2003).

Parental monitoring and positive peer role models were notable because of their relative high odds ratios for both genders. Adolescents who believe that smoking is more prevalent are themselves more likely to want to smoke (Weiss & Carbanati, 2006). Moreover, adolescents who start smoking may end up in peer group networks where they are more likely to develop an established smoking pattern and continue to smoke (Henry & Kobus, 2007). Therefore, in the prevention of tobacco use for both genders promoting peer influence, emphasis be put in intervening within the above social networks, while building positive peer influence by strengthening positive peer social networks.

The importance of parental influence as it is highlighted in this study via the family-level assets (e.g. parental monitoring, family communication) should not be underestimated as it can be either protective through the provision of parental monitoring or harmful via modeling by parents who smoke. In one prospective study, children who reported that their parents spent more time with them and communicated with them more frequently had lower onset of alcohol and tobacco use in the last month. These parental interactions led to more positive relationships with their children. Parental monitoring and positive relationships were protective factors to disruptive behaviors and the selection of substance using friends (Cohen, Richardson, & LaBree, 1994). In another longitudinal study it was found that sustained, not only just initial, parental involvement, and monitoring provided direct protective effects against smoking progression as well as indirect effects by limiting access to friends who smoke. Because early adolescence is a period of rapid development that provides great parenting challenges, those parents who manage to increase or sustain positive parenting practices over a period have a much better chance of influencing the smoking behavior of their adolescent children than those who do not (Simons-Morton, Chen, Abroms, & Haynie, 2004).

The fact that the strength of the association between parental monitoring and no-tobacco use generally diminished over the course of the study for females may allude to the notion that there is a dynamic relationship between parental and peer influences in terms of tobacco use among youth. The current literature on this aspect is inconsistent. For example, research has documented that parents may have an indirect protective effect against their child's smoking progression when they limit increases in his/her exposure to friends who smoke (Simons-Morton et al., 2004). On the other hand, studies have shown that pro-smoking peer influence may be a stronger predictor than are family influences during the transition to regular smoking (Tucker et al., 2008). These findings suggest that peers may replace family as the dominant social influence on smoking during the course of adolescence, consistent with the shift from a family-centered life to activities outside the home during this period (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996). This could be especially true for female youth. Thus, tobacco prevention programs aimed at promoting parental monitoring and family communication, may be strengthened by actively engaging parents on tobacco prevention programs, and teaching parents how to communicate effectively with their children and how to build strong, healthy, and sustained relationships with them.

The results also suggest that the neighborhood environment had little impact on tobacco use among all youth regardless of gender, taking in consideration the influence of assets as well as demographic characteristics. As stated earlier, prior studies have focused primarily on socio-economic characteristics of the people residing in the neighborhood, the density of tobacco outlets and the degree of social activities within the neighborhood (Kaestle & Wiles, 2010; Novak, Peardon, Raundenbush & Buka, 2006). Our results indicate that physical appearance of the neighborhood as well as social processes such as neighborhood cohesion generally were not associated with youth tobacco use and they did not change the relationships between assets and the prediction of tobacco use among youth. This could be explained, perhaps, by the fact that the neighborhood of youth residence is not as influential as one might expect. As children grow up and become young adults, the role of "neighborhood" as an institution declines and perhaps is being replaced by the influence of their peers or other significant adults, such as parents and teachers who might or not live in the same neighborhood.

From a programmatic perspective most of the evidence based efforts to reduce smoking among youth have centered on health communication campaigns, school-based programs/ policies, legislative and regulatory strategies such as increasing of tobacco prices while promoting an active involvement of youth (Centers for Disease Control and Prevention, 2010b; U.S. Department of Health and Human Services, 2012). The results of this study provide an alternative model that can be used as a complementary approach to the existing evidence-based programs while promoting individual, family-related,

and community-assets that can insulate youth from engaging not only in tobacco use but also in other risky behaviors.

It is important to acknowledge the limitations of the current study, including methodological challenges in assessing neighborhood effects. One study limitation was that socially acceptable answers may have been given in response to some questions. However, since youth were allowed to self-administer the risk-behavior items, the number of socially acceptable responses may be minimal. A second limitation was the study's 61% response rate. The study was atypical in that participants were recruited via door-to-door canvassing of every household in the randomly-selected census tracts with the goal of obtaining a community-based sample that was racially/ethnically and economically diverse. The representativeness of the study sample was evaluated by comparing by census tract the participants' race/ethnicity and total family income data (collected in 2003/2004) to 2000 census data for race/ethnicity and median family income. Family income was not different from the study sample in 17 of 20 census tracts; in the other 3 the family income census data was lower. Youth participant race/ethnicity was compared to the overall race/ethnicity of the census tract; it was not different in 5 tracks and in the other 15 the percent of nonwhites, in particular Hispanics, was generally higher in the study sample compared to the census data. These race/ethnicity differences could be explained by the intent to over sample minority households as well as the issue of an indirect comparison (race/ethnicity of the youth study participants compared to race/ethnicity of the total population of the census tract).

The results of this study indicate that promoting youth assets within the framework of the social ecological model can be an important strategy for preventing tobacco use among both genders. This is an important finding since most strategies to reduce tobacco use in youth have focused on promoting individual characteristics or behaviors. This study is unique because it provides an alternative approach toward tobacco use prevention. There were no notable differences between genders, however, two youth assets, parental monitoring and positive peer influence seem to be relatively more important than the others in future no-tobacco use. Another interesting finding was that the role of the environment defined here as neighborhood context and social processes might not be as influential as previously believed. More research is needed to test the effectiveness of interventions promoting youth assets (either tailored to each gender or to both genders) by incorporating strong evaluation designs.

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This article may provide one
Continuing Education Contact Hour Opportunity for CHES (Approval Pending)

Instructions and self-study questions may be found on page 47

Continuing Education Contact Hour Self-Study

Perspective associations between youth assets, neighborhood characteristics and no-tobacco use among youth: Differences by gender

Active members of Eta Sigma Gamma may receive one (Category 1) continuing education contact hour for CHES and MCHES. Complete the self-study questions below by circling the correct answer and completing your contact information. A score of 80% is passing. Send a copy of this page to: Susan Koper, Eta Sigma Gamma, 2000 University Avenue, CL 325, Muncie IN 47306; or FAX this page to 765-285-3210. This CECH opportunity is available from August 1, 2013 through July 30 2014.

1. This study is unique in that it focuses on examining all of the following **except:**
   a. Neighborhood context
   b. Neighborhood support
   c. Neighborhood social control
   d. The influence of a single youth asset and tobacco use

2. To obtain the baseline sample of youth and parents, how did the authors determine participants in each census tract?
   a. Door to door canvassing
   b. Online questionnaire
   c. Telephone call
   d. Mail in questionnaire

3. What time constant demographic variable was assessed at each interview?
   a. Age at baseline
   b. Family structure
   c. Gender
   d. Race/ethnicity

4. What formula was used to determine the reliability of the asset constructs?
   a. Cronbach's Alpha
   b. Spearman-Brown
   c. Kundar- Richardson
   d. Cohen's Kappa

5. Which of the following is **not** one of the five neighborhood social process variables measured from the parent interviews?
   a. Neighborhood concerns related to crime and safety
   b. Sense of living
   c. Neighborhood support
   d. Informal social control

6. Which **TWO** types of statistics were calculated to compare baseline demographics, assets, and environmental factors between males and females?
   a. Chi-squares
   b. ANOVA
   c. T-tests
   d. Regression analysis

7. The percentage of youth smoking increased significantly for males and females between which two waves?
   a. Wave 2 to wave 5
   b. Baseline to wave 4
   c. Wave 2 to wave 4
   d. Baseline to wave 5

8. Which of the following assets was associated with higher odds of "no-tobacco use" in males who consistently reported living in a one- or two-parent home?
   a. Community involvement
   b. Parental monitoring
   c. Responsible choices
   d. Inconsistent family structure

9. The results indicate that for both genders, emphasis should be placed on all of the following socio-ecological levels **except**:
   a. Individual
   b. Community
   c. Family
   d. Societal

10. The results suggest that which of the following youth assets was **not** associated with youth tobacco use regardless of gender?
    a. Physical appearance of neighborhood
    b. Parental monitoring
    c. Positive peer role models
    d. Neighborhood support

Name: _____

Address: _____

E-mail: _____

CHES/MCHES #: _____ *Remember to keep a copy for your records.*