



# Minorities' Diminished Returns of Family Socioeconomic Status on Youth Peers' Tobacco Use

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## Abstract

**Background:** Although high socioeconomic status (SES) is known to be associated with low-risk behaviors, the effects of high family SES may be weaker for racial and ethnic minority than majority youth.

**Aim:** We compared the association between family SES and peers' tobacco use risk between majority and minority youth in the US.

**Methods:** We used four years of follow up data from the Population Assessment of Tobacco and Health (PATH-Youth) study. All participants were 12 to 17 years old at baseline and were successfully followed for four years. 4652 Non-Latino and Latino White and Black youth were enrolled. Outcome was peers' tobacco use risk at year four, treated as a continuous measure. Predictor was baseline parental SES, as a proxy of family SES. Moderator was racial and ethnic minority status. Covariates were age, gender, and family structure at baseline.

**Results:** Our linear regressions in the pooled sample showed that higher family SES at baseline was associated with a lower level of peers' tobacco use risk at year four, however, this association was weaker for minority than majority youth. Our stratified models also showed that higher family SES was associated with a lower level of peers' tobacco use risk for majority but not for ethnic minority youth.

**Conclusion:** The presumed protective effect of high family SES against peers' tobacco use risk varies between diverse ethnic groups of youth. Future research should test the role of school and neighborhood climate on weakening the protective effects of family SES for minority youth. The role of high-risk schools and neighborhood environments and other contextual conditions should be tested in future multi-level research.

**Keywords:** Population groups, risk behavior, peers' tobacco use risk, ethnic groups, tobacco use, peer pressure

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## Background

Although youth are at heightened risk of tobacco use<sup>1</sup>, family socioeconomic status (SES) may lower such risk<sup>2</sup>. One of the underlying mechanisms by which tobacco use risk is lower in youth from high SES families is lower peers' risk of tobacco use<sup>3</sup>.

However, the protective effects of family SES on youth risk behaviors such as tobacco use may differ between minority and majority youth<sup>4</sup>. According to a phenomenon called marginalization-related diminished returns (MDRs)<sup>5-14</sup>, due to racism and social stratification, high family SES is associated with fewer changes in behavioral and developmental outcomes for minority than majority youth. This is because SES effects may decline in the presence of marginalization and racialization of high SES minority families<sup>15,16</sup>.

Research has indicated that minority and majority families and individuals differ in how SES influences behaviors such as tobacco use<sup>17-27</sup>. For example, the association between family SES and health risk varies between majority and minority youth<sup>28-30</sup>. Across all SES levels, minority youth are discriminated against<sup>31,32</sup> attend poor schools<sup>33</sup> live in unsafe neighborhoods, and have high risk social network<sup>34</sup>. When they move to high SES neighborhoods and schools (that are composed of predominantly majority population), they become even more discriminated<sup>35,36</sup>. In addition, education system does not similarly treat majority and minority youth<sup>37,38</sup>, thus the correlation between family SES and youth behaviors may vary between minority and majority youth<sup>28-30</sup>.

According to the marginalization-related diminished returns (MDRs), economic, behavioral, and health risk

remain high for high SES minority youth who are marginalized and racialized<sup>15,16</sup>. While most of this literature is generated on health outcomes for adults' adults<sup>14,17,19,21,27,39-41</sup>, some recent research has shown similar patterns for youth. A potential explanation for these observations is that although high SES reduces risk, social stratification, segregation, racism, and discrimination make it more difficult for minority than majority families and individuals to secure outcomes in the presence of SES resources. In this view, SES that generates large real-life influences for majority families may generate smaller real-life changes for minority individuals<sup>42,43</sup>.

### Aim

Built on what we know about differential association between family SES on youth environment such as school quality<sup>33</sup> and neighborhood<sup>44</sup> between minority and majority youth, we compared the association between family SES and peers' tobacco use risk between minority and majority youth. Our first hypothesis was that overall, high family SES is associated with lower peers' tobacco use risk. Our second hypothesis was that this inverse association is weaker for minority than majority youth.

### Methods

#### Design and Setting

This was a longitudinal study. For this study we conducted a secondary analysis of the first four years of the Population Assessment of Tobacco and Health (PATH-Youth) study data. The PATH-Youth is the state-of-the-art study of tobacco use of US youth.

#### Sample and Sampling

In the PATH study, participants are selected randomly. Stratified and clustered random samples were selected from all US states. Eligibility was non-institutionalized members of US households. All participants were aged between 12 and 17 at baseline. Only non-Latino or Latino Black and White participants were included in this analysis.

#### Variables

Study variables in this analysis included race, ethnicity, family SES, family structure, age, gender, and peers' tobacco use risk. Family SES was the independent variable with five levels, and peers' tobacco use risk was the outcome. Both family SES and peers' tobacco use risk were treated as continuous measures.

#### Outcome

Peers' Tobacco Use Risk. Peer tobacco use risk was measured at year four using the following five items: (a) How many of your best friend's smoke cigarettes, (b) How many of your best friends use e-cigarettes, (c) How many of your best friend's smoke cigarillos, (d) How many best friends use snus, and (e) How many of your best friends use smokeless tobacco. Each item response varied between 1 (none) to 5 (all). We calculated a mean score that could have a potential range from 1 to 5. Peers' tobacco use risk was self-reported with a higher score indicating higher level of peers' tobacco use risk.

These items are modified versions of the items used by Taken from: Monitoring the Future: A Continuing Study of American Youth (8th- and 10th-Grade Surveys), 2000. Cronbach alpha was larger than 0.8 for this measure. Thus the measure has high internal reliability.

#### Predictor

Family SES. Family SES was measured based on highest level of education of parents. This was a five-level variable: 1 = "Some high school," 2 = "Completed high school," 3 = "Some college," 4 = "Completed college," 5 = "Graduate or professional school after college." This variable was a continuous variable, and was calculated based on the answers regarding separate questions for paternal and maternal education.

#### Covariates

Age was a dichotomous variable 0 for lower than 15 and 1 for 15 and above. Gender was 1 for male and 0 for female. Family structure was a dichotomous variable that reflected married parents and any other condition (divorced, not married, partnered, etc.).

#### Moderators

Minority vs. Majority was determined based on race and ethnicity. Black and Latino youth were regarded as minority and non-Latino and White youth were considered majority.

#### Data analysis

Data analysis was performed using SPSS 24. SPSS was used for univariate, bivariate, and multivariable analysis. Univariate was descriptive statistics such as mean (standard deviation [SD]) and frequency (%). Bivariate included Spearman correlation test. With outcome being peers' tobacco use risk score, predictor being family SES, and moderators (effect modifiers) being race and ethnicity, while age, gender, and family structure as the covariates, four linear regression models were applied for multivariable modeling. Model 1 and Model 2 were run in the pooled sample. Model 3 to Model 6 were performed in majority, non-Latino Black, Latino White, and Latino Black youth. Model 1 did not have, and Model 2 had the interaction terms between race /ethnicity and family SES (parental education) our predictor variable. B, SE, 95% CI, and p were reported from each model.

#### Institutional Review Board (IRB)

This study used publicly available PATH data. All data are fully de-identified. Thus the study was not human subject research and exempt from full IRB review

### Results

#### Descriptive Data

Overall 4652 youth entered our analysis and were successfully followed for four years. Descriptive data are reported in Table 1. This table describes the total sample and by race and ethnicity. As Table 1 also shows, ethnic minority youth had lower family SES than majority youth.

**Table 1.** Descriptive statistics in the pooled sample and overall

	Non-Latino White		Non-Latino Black		Latino White		Latino Black		All	
	n	%	N	%	n	%	n	%	n	%
<b>Age</b>										
12-14	2471	96.8	726	94.2	1186	97.0	103	97.2	4486	96.4
15-18	81	3.2	45	5.8	37	3.0	3	2.8	166	3.6
<b>Gender</b>										
Male	1329	52.1	393	51.0	641	52.4	51	48.1	2414	51.9
Female	1223	47.9	378	49.0	582	47.6	55	51.9	2238	48.1
<b>Marital Status of the Parents</b>										
Not Married	677	26.5	480	62.3	450	36.8	71	67.0	1678	36.1
Married	1875	73.5	291	37.7	773	63.2	35	33.0	2974	63.9
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Family SES (1-5)	3.2034	1.17257	2.1112	1.13308	2.2547	1.17968	2.2547	1.17968	2.7956	1.25458
Peers' Tobacco Use Risk	6.6211	2.63473	6.0311	1.99607	6.9434	4.26018	6.9434	4.26018	6.3805	2.53085

\* p < 0.05 for comparison of majority, non-Latino Black, Latino White, and Latino Black youth

**Pooled Sample Models**

Table 2 presents the summary of linear regressions for Model 1 and Model 2 that were fitted to the pooled sample. As this model shows, higher family SES was associated with a lower level of peers' tobacco use risk, however this association was stronger for majority than minority youth.

**Table 2.** Pooled Sample Models in US youth

	Unstandardized B	Unstandardized Std. Error	Standardized Beta	t	Sig.	Lower Bound	Upper Bound
<b>Model 1 (All, Main Effects)</b>							
Race (Black)	-.566	.100	-.088	-5.662	.000	-.763	-.370
Ethnicity (Latino)	-.594	.089	-.106	-6.709	.000	-.768	-.421
Male	-.327	.073	-.065	-4.446	.000	-.471	-.183
Age	.284	.198	.021	1.431	.153	-.105	.672
Married Parents	-.457	.081	-.087	-5.668	.000	-.615	-.299
Family SES (1-5)	-.108	.032	-.054	-3.400	.001	-.171	-.046
<b>Model 2 (All, M1 + Interaction)</b>							
Race(Black)	-1.414	.246	-.221	-5.748	.000	-1.896	-.932
Ethnicity (Latino)	-1.384	.213	-.234	-6.495	.000	-1.801	-.966
Male	-.330	.077	-.065	-4.286	.000	-.482	-.179
Age	.257	.208	.019	1.240	.215	-.150	.664
Married Parents	-.437	.085	-.082	-5.139	.000	-.604	-.270
Family SES (1-5)	-.251	.043	-.123	-5.889	.000	-.335	-.168
Family SES (1-9) x Race (Black)	.293	.083	.132	3.524	.000	.130	.457
Family SES (1-9) x Race (Latino)	.324	.078	.138	4.128	.000	.170	.477

**Outcome:** Peers' tobacco use risk Score

**SES:** Socioeconomic Status

### Stratified Models

Table 3 presents the summary of linear regressions for Model 3 to Model 6 that were fitted to non-Latino White, non-Latino Black, Latino White, and Latino Black youth, respectively. As these models show, higher family SES was associated with a lower level of peers' tobacco use risk for majority but not for any other race ethnic group of youth.

**Table 3.** Stratified models by race x ethnicity among youth

	Unstandardized B	Unstandardized Std. Error	Standardized Beta	t	Sig.	Lower Bound	Upper Bound
<b>Model 3 (Non-Latino Whites)</b>							
Male	-.412	.102	-.078	-4.031	.000	-.613	-.212
Age	.327	.291	.022	1.121	.262	-.245	.898
Married Parents	-.744	.118	-.125	-6.288	.000	-.975	-.512
Family SES (1-5)	-.277	.045	-.123	-6.215	.000	-.364	-.189
<b>Model 4 (Non-Latino Blacks)</b>							
Male	-.174	.182	-.034	-.955	.340	-.531	.183
Age	-.415	.388	-.039	-1.071	.285	-1.176	.346
Married Parents	-.225	.189	-.043	-1.190	.234	-.596	.146
Family SES (1-5)	.103	.079	.048	1.307	.191	-.052	.258
<b>Model 5 (Latino Whites)</b>							
Male	-.145	.114	-.036	-1.275	.203	-.368	.078
Age	1.224	.332	.105	3.690	.000	.573	1.875
Married Parents	-.090	.118	-.022	-.762	.446	-.322	.142
Family SES (1-5)	.065	.050	.037	1.302	.193	-.033	.164
<b>Model 6 (Latino Blacks)</b>							
Male	-1.995	.837	-.235	-2.384	.019	-3.654	-.335
Age	1.845	2.525	.072	.731	.467	-3.163	6.853
Married Parents	.151	.880	.017	.171	.864	-1.595	1.897
Family SES (1-5)	.235	.352	.065	.666	.507	-.464	.933

Outcome: Peers' tobacco use risk Score

SES: Socioeconomic Status

### Discussion

The current study evaluated the association between family SES and peers' tobacco use risk overall and by minority status. We found an inverse association between family SES and peers' tobacco use risk. However, this association was weaker for minority than majority youth.

The inverse association between family SES and peers' tobacco use risk can be explained by socioecological models and social stratification, segregation, and socioeconomic inequalities<sup>45-52</sup>. According to ecological theories, individuals are embedded in and nested in peers, neighborhoods, schools, families, that shape their risk<sup>53-59</sup>. However, there are some disagreements on the mechanisms behind the clustering of race, SES, peer risk, and poor neighborhoods.

There are multiple studies that show racial variation in the association between SES, health, and behaviors, with weaker associations in minority than majority youth<sup>60</sup>. There are also studies showing stronger and weaker associations between SES and tobacco risk in Black than White individuals<sup>14,18-26,39,41,61,62</sup>. However, we are unaware of any past studies on Black-White differences in the association between family SES and peers' tobacco use risk.

Fuller Rowel has conducted some studies on racial variation in health-behavior association<sup>28-30</sup>. One of their studies showed that Black and Native American adolescents pay greater social costs with academic success than Whites, however, this is seen in highly achieving schools with a smaller percentage of Black students<sup>63</sup>. In another study, they showed that the effects of educational attainment were weaker for Black than for

whites, and only 8% of this difference was due to covariates. Analyses yielded consistent results. They concluded that the effects of educational attainment on inflammation levels are stronger for whites than for Blacks<sup>29</sup>.

Our observation on a weaker association between family SES and peers' tobacco use risk in minority than majority youth is in line with many previous publications on the MDRs. According to marginalization-related diminished returns, economic resources generate fewer economic, behavioral, developmental, and health outcomes for marginalized groups than White individuals. This study expanded the MDRs literature which is written on tobacco use risk<sup>64,65</sup>. Previous work has shown that SES – tobacco use risk is racialized<sup>64,65</sup>. This study showed that SES– peers' tobacco use risk is also racialized in the US. This finding may be because at each SES levels, majority youth attend better schools and live in safer neighborhoods than minority youth<sup>33</sup>, and this means risks and challenges may extend to the lives of minority youth across all SES levels<sup>31,32</sup>. Diminished returns of family SES in minority families may also be because of discrimination of high SES minority youth at schools<sup>31,32</sup>, particularly in high SES predominantly White neighborhoods<sup>35,36</sup>.

To conclude, we tested the association between family SES and peers' tobacco use risk overall, and by race and ethnicity. We found that overall, high family SES is associated with lower peers' tobacco use risk, however, this inverse association is weaker for Black and Latino than White and Non-Latino youth. Racialized return of family SES on peers' tobacco use risk may reflect structural inequalities in schools and neighborhoods of Latino and Black communities.

### Review Highlights

#### What Is Already Known?

High SES is associated with lower tobacco use in youth.  
High SES is associated with low-risk peers.

#### What This Study Adds?

The association between SES and peers' risk is weaker in ethnic minority than majority youth.  
Ethnic minority youth may have high risk peers across all SES levels.

### Conflict of Interests

None

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