# Smoking at a Racial Intersection: The association between interracial unionship and smoking behavior

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#### Abstract

Does crossing racial boundaries through unionship (either marriage or cohabitation) have any relationship with health behaviors? Prior research on smoking behaviors identifies significant and persistent racial/ethnic differentials in smoking behavior such that Latinos, Asians, and African Americans are less likely to be former or current smokers than Whites. This paper examines racially-specific smoking profiles for those who partner across race/ethnicity categories. Using a pooled sample of 144,982 respondents from the National Health Interview Survey (2001-2011), we observe the likelihood of smoking (either currently or in the past) compared to never smoking for those in relationships (cohabitations or marriages). We find that, overall, those in interracial unions have a significantly higher likelihood of smoking but this varies by the racial/ethnic composition of the couple. Whites who cross racial divides continue to smoke more often than their same-race peers, particularly Whites with Black partners. Blacks, Latinos, and Asians with White partners have smoking behaviors that are in-between Whites and their respective minority groups. These patterns reveal the importance of specific and local racial contexts for examining health behaviors, as those contexts where boundaries are blurred can produce significant differences in health behaviors and provide insights into how partners may influence each other's health behaviors, an important area for health promotion.

Smoking behavior continues to contribute heavily to the incidence of death and disease across all race/ethnic groups (Rogers, Hummer, Krueger, and Pampel 2005; Fenelon and Preston 2012). However, the ways smoking differs by race/ethnicity in an increasingly diverse demographic landscape remain under-explored. According to Mokdad, Marks, Stroup, and Gerbeckling (2004), forty percent of deaths annually are linked to unhealthy behaviors, such as cigarette smoking, alcoholism, and physical inactivity (Rogers et al. 2005). Smoking, in particular, has deleterious consequences for health, as it is linked to lung cancer and a range of other chronic conditions. Unraveling the persistence of smoking behaviors across race/ethnicity remains an important public policy priority as some groups of color remain at disproportionate risk for several smoking-related diseases (Williams 2012). The persistence of racial/ethnic disparities in smoking, as with other health behaviors, marks the ongoing social, cultural, and economic segregation of racial groups as well as the impact of the rigors of minority status (Williams 2012; Williams and Sternthal 2010; Cubbins and Buchanan 2009). Therefore, two groups can experience a wide range of differences in environmental context even within the same geographic community, and present with highly distinctive profiles of health behavior. However, what happens to patterns of smoking behaviors across race/ethnicity if two groups occupy the same space, specifically the same household, as a part of the same marital or cohabiting couple?

To this end, we ask whether crossing racial boundaries in intimate unions (either marriage or cohabitation) has any impact on the likelihood of being a smoker. Interracial marriage, as a form of significant and sustained interracial contact, provides our most frequently used measure of social distance between groups (Lee and Bean 2010). The recent expansion of interracial unions point to both narrowing of social distance (Passell, Wang, and Taylor 2010;

Qian and Lichter 2011; Qian and Lichter 2007) as well as an enhanced cultural complexity in the familial contexts that Americans occupy. Like other behaviors, the persistence of smoking marks how it is normed within social relationships. Intimate relationships are such spaces where the spouses or partners impact adoption and maintenance of risky behaviors (Umberson, Crosnoe, and Reczek 2010). We frame our investigation around broader issues of how presence in an interracial union may signify a general exposure to racial/ethnic interaction that may result in differences in smoking behavior. In these instances, theoretically, resources are shared, social networks overlap, and life circumstances converge. We aim to understand how this convergence may be associated with health behaviors when the individuals are from two different racial groups with different health behavior distributions.

This research explores the question of the relationship of interracial contact and smoking using nationally representative data, the National Health Interview Survey, pooled over the years 2001 to 2011. Using this information, we explore the following research questions. First, do interracial couples have a distinctive risk of current or former smoking, regardless of their specific race/ethnicity or specific socio-demographic backgrounds? Here we seek to establish whether there is a global or independent association between presence in an interracial union and smoking behavior. Second, does this effect vary across different race/ethnic groups? Just as crossing racial/ethnic lines is more common among some groups than others, the association between interracial union status and smoking is likely shaped by specific ethnic background and social context. Third, how do the smoking behaviors of interracial couples compare to the behaviors of race/ethnic groups in same race/ethnicity couples? Specifically, we aim to describe the differences in smoking behaviors of those who marry across race, to determine if behaviors are more likely to conform to one group or the other or be a combination of the two.

#### **Race and Smoking Behavior: The Role of Racial Social Ties**

Smoking behavior (the likelihood of being a current smoker, a former smoker, or never having smoked) is heavily stratified by race and ethnicity. Generally, smoking has become less common over time in the United States, with over half of the U.S. population classified as never smoking, and 21 percent reporting having quit smoking (Schoenborn, Adams, Peregoy 2013). Relative to non-Latino Whites, Latinos and Asians tend to be less likely to currently smoke or even to have ever smoked, according to national statistics (NCHS 2013; Schoenborn, Adams, Peregoy 2013), but this varies tremendously by nativity and gender, with rates of smoking among U.S. born Latinas approaching smoking levels of White females (Abraído-Lanza, Chao, and Flórez. 2005; Bethel and Schencker 2005). Roughly one fifth of Black and White adults are current smokers, higher than Latinos and Asians overall, whose rate of current smoking is about 13 percent and 10 percent respectively.

Some of the racial/ethnic variation in smoking behavior can be traced back to a variety of demographic, structural and acculturative characteristics that structure the norms around smoking engagement. For example, smoking tends to increase among immigrants and their descendants with increasing exposure to the United States (Bethel and Schenker 2005; Lara, Gamboa, Kahramanian, Morales, and Bautista 2005; Lopez-Gonzalez, Aravena, and Hummer 2005). Asians, and particularly Latinos, have higher smoking rates when they are native-born, later generation, citizens, and English speakers (Lopez-Gonzalez, Aravena, and Hummer 2005; Choi 2008). Notably, this is more common among women, even though women smoke less, overall, than men (Lopez-Gonzalez, Aravena, and Hummer 2005; Bethel and Schenker 2005). African Americans have comparable rates of smoking relative to Whites, with Black women and the foreign born reporting the lowest levels of smoking (Schoenborn, Adams, Peregoy 2013;

Bennett et al. 2007). Above all else, however, social class indicators, such as education, employment, and presence in poverty, have the most sustained relationship to smoking as a risky health behavior (Pampel, Kruger, and Denney 2010).

Beyond structural or demographic issues, race/ethnicity patterns in smoking can also be traced back to social ties occurring within and between groups. The interpersonal relationships that tether individuals to their social networks represent the "non-structural" mechanisms through which acculturation and ethnic density operate to shape norms that guide behaviors. Ethnically dense residential spaces provide greater social cohesion, mutual social support, and a strong sense of community belonging (Bécares et al. 2012). In this atmosphere, norms against smoking behavior can produce healthy behaviors (i.e. lower rates of smoking). Similarly, spaces where disadvantage is concentrated routinely have higher levels of smoking due to residents being routinely exposed to other smokers and the norms of smoking (Roux et al. 2003), a pattern that confirms a "place not race" explanation for health and health behaviors (LaVeist et al. 2011). In all, relationships have been found to be a meaningful mechanism that impacts the pattern and propensity toward adopting risky behaviors.

Tracking the ethnic variation in smoking behavior strongly suggests that increased exposure beyond community boundaries can elevate an individual's likelihood of smoking through minimizing the importance of ethnically specific values (Bethel and Schenker 2005). As was referenced above, characteristics that proxy acculturation, such as nativity, citizenship, English proficiency, and generational status, are strongly and consistently related to a pattern of greater exposure to a U.S. context that leads to higher smoking among Latinos (Bethel and Schneker 2005; Lara et al. 2005; Perez-Stable et al. 2001; Oh et al. 2011). Similar evidence has been found for Blacks when comparing the native and foreign born (Bennett et al. 2007), and

among Asians (Gomez et al. 2004). Greater acculturation has the most powerful influence on women's smoking behavior, especially for Asians (Choi et al. 2008) and Latinos (Lopez-Gonzalez et al. 2005) raising the question of whether inter-group contact has gendered implications for health behaviors. In contrast, living amongst co-ethnic peers has a fairly sustained protective influence on health behaviors, corresponding to lower levels of smoking but is a more protective influence among Latino/as than African Americans (Bécares, Shaw, Nazroo, et al. 2012), although this is likely due to the fact that ethnically dense spaces occupied by African Americans are also highly disadvantaged (LaVeist et al. 2011; Cohen et al. 2011).

What remains unclear, oddly, is the role or influence of actual relationships on health behaviors. While studies of acculturation have highlighted the important of individual's sense of their own cultural values and distance from a common cultural core (e.g. Lee, Sobal, and Frongillo 2000; Klonoff and Landrine 1996), few actually include measures of *cross-racial contact*. The race/ethnic composition of couples, specifically, whether they are interracial or same-race, may signal a degree of attachment or distance from ethnic communities that also produces differences in health behaviors. The relationships between family members, whether immediate or extended, are important sites where information is transmitted and norms are established or maintained (Chun 2006) and thus are a powerful site for the study of the proliferation of health behaviors (e.g. Guevarra et al. 2005).

#### **Interracial Contact, Unions, and Health Behaviors**

Interracial marriage is one of the clearest and most easily measured indicators of sustained, intimate interracial contact. Levels of interracial unionship are often considered the "litmus test" of racial social distance and assimilation of non-white groups into an "American mainstream" (Qian and Lichter 2007) in part because a marriage or partnership implies the most intimate level of contact and requires both parties to enter the relationship as equals in the eyes of the state, their families, and each other (Kalmijn 1998). Importantly, interracial union-ship has expanded considerably over the past forty years. Currently, interracial marriages encompass over 8 percent of all marriages and more than fifteen percent of all newly married couples (Passel, Wang, and Taylor 2010), however its extent varies dramatically across race/ethnicity. Among recent marriages, the lowest rates occur among Blacks and Whites, particularly Black women (less than ten percent), while over half of U.S. born Asian and Latinos have different race spouses (Qian and Lichter 2011).

The question of whether the emergence of such relationships translates into shifts in health behaviors requires attention to both the how presence in a union at all distinguishes health behaviors and the ways interracial contact *within* those unions may further differentiate health experiences. Romantic partnerships are important determinants of health behaviors. There are clear smoking status differences between unpartnered and partnered individuals. Those who are married are less likely to be smokers than the unmarried due to selectivity associated with marriage (Umberson 1992; Lillard and Panis 1996). Assortative mating may be one reason why romantic partners are likely to share similar smoking behaviors. Also, romantic partners are likely to influence the behaviors of one another which may lead to a concordance in behaviors (Umberson 1992). For example, women nonsmokers with smoking partners have shown an increased risk of smoking initiation compared to women whose partners did not smoke (Daly, Lund, Harty and Ersted 1993). And smoking partners may also influence a partner's return to smoking (Kahn, Certain, and Whitaker 2002).

Commitment within an interracial union brings unique experiences and perhaps additional stressors that may also influence shared health behaviors. On one hand, there are reasons to believe smoking would be more common among interracial couples. Ethnographic literature on interracial coupling documents experiences of hostility from strangers or marginalization from family members reflecting the stigmas associated with violating norms of endogamy, particularly for couples that cross the Black/White divide (Chito Childs 2005). Although rates of intermarriage among Asians and Latinos are higher, suggesting that fewer stigmas are attached to crossing racial/ethnic lines, those who intermarry are likely the most acculturated among the native born, leading perhaps to greater tendency to smoke. While it's unclear if these experiences directly result in heightened stress or cultural detachment, some adults in interracial couples tend to report higher rates of psychological distress than their counterparts in same-race relationships (Bratter and Eschbach 2006) again pointing, perhaps, to a higher tendency to smoke.

On the other hand, rates of smoking among those in interracial couples may be comparable or lower than their respective groups. Blacks and Latinos who intermarry are selected positively on social class characteristics, such as education (Gullickson 2006) and tend to live in higher quality and more ethnically diverse neighborhoods (Ellis et al. 2007). These health promoting environments and attributes may drive smoking rates down. Thus, various scenarios may characterize the ways interracial unionship differentiates smoking behaviors.

#### **Research Questions**

We advance three research questions to disentangle the relationship between race, interracial union status, and smoking. First, we ask whether the presence in an interracial union

coincides with elevated risk of being a current or a former smoker. We test the independent effect of presence in an interracial union, above and beyond race of the respondent and other characteristics related to smoking behavior. Second, we test if the association between interracial union status and smoking varies across race/ethnicity. To the degree that crossing racial lines corresponds to greater smoking behavior, does that elevation vary in degree for groups with exceedingly low rates of smoking (such as Asians) or groups with relatively higher rates of current smoking (such as Whites)? Third, we examine how the smoking behaviors of those who are in interracial unions compare with their racially similar peers in homogenous relationships. For example, when compared to Whites and Blacks in homogenous relationships, are Whites with Black partners more similar to Whites or Blacks? Are Blacks with White partners more similar to Whites or Blacks?

#### **Data and Sample**

The data for this project come from a ten year merged dataset of the National Health Interview Survey (NHIS) from 2001-2011, extracted from the Integrated Health Interview Series (IHIS) (Minnesota Population Center and State Health Access Data Assistance Center 2012). This cross-sectional annual survey is conducted by the National Center for Health Statistics and the Center for Disease Control to gauge a wide range of health information among those residing in the United States. The NHIS is sampled using a multi-stage probability design intended to be representative of the non-institutionalized civilian population in the United States. The survey includes a household roster file, which holds information on every person in the household, and several core questionnaires that provide information on a sampled member of the household (adult or child) or family. This analysis draws on the sample adult file. The sample adult file

includes detailed health information on a randomly selected adult living within the household. In our pooled sample, there are 985,416 records in the person file, with 315,327 sample adults.

Of the sample adults, we focus our sample on those who are married or cohabiting, with valid information on the race of the co-resident partner. In all, there are N=186,270 married or cohabiting respondents in the data. In order to match the races of sample adults to their spouses, we could only use those who were listed as householders, spouses or partners or householders, or parents of householders. Marriage or cohabitations between other statuses (e.g., children, children in-law, other relative) were not discernible. This limited our sample to N=155,518 cases. We further limited our sample to adults who were 25 years old and older (to ensure that most respondents have completed their education), who are monoracial, and whose group consists of at least 1,000 members. These final criteria limited us to sample adults in the following categories: Whites, Blacks, Asian, and Latinos. Multiracial (non-Latino) respondents were dropped due to lack of information on their component races; not knowing the individual's specific racial background makes it impossible to evaluate whether their marriages cross a racial/ethnic divide. Finally, we limited our sample to those who had valid information on smoking behavior, dropping an additional 1,194 cases. The final sample consists of N=144,982 respondents. Of those in this sample, 8.4 percent have partners or spouses of a different race/ethnic background.

### Variables

#### **Dependent Measure**

*Smoking status*. Our primary dependent measure is smoking status drawn from detailed smoking status information provided by the IHIS. Current smokers include those reporting

smoking every day and some days. We also provide categories for "former smokers" and those who never smoked. Those whose smoking status is unknown are coded as missing and dropped from the analysis.

#### Independent Measures

*Race/ethnicity*. As was indicated above, the sample is limited to White, Black, Latino, and Asian respondents. The NHIS provides racial categories that conform to federal guidelines of the Office of Management and Budget (Office of Management and Budget 1997), which specify that Latino ethnicity be gauged in a separate question from race and that respondents are allowed to report one or more races. As is convention, all respondents who report any Latino ethnicity (regardless of the specific races or number of races they choose) are labeled Latino. All other (non-Latino) respondents are labeled as the sole race they report and we included those who identify with the following categories – White, Black, or Asian. The current policy of the NHIS is to place all of those reporting multiple races, of which there are over 3,000, in an aggregate multiracial category with no information provided on the specific races they selected. These individuals, as well as American Indians and "some other race" respondents, are dropped from the analysis.

*Demographic Controls*. We include a series of demographic measures to account for age and period differences in smoking status, as well as gender and union status. We include a continuous age measure and a dichotomous measure of whether the survey was taken after 2005, to adjust for changes in smoking behavior over the life course and over this time period. We also include a dichotomous measure for sex (female=1), and whether an individual is living with a partner (cohabiting=1), as opposed to being married (married=0).

*Interracial unionship*. We include two types of measures to capture interracial unionship. First we include a simple dichotomous indicator (1=has a spouse/partner of a different race/ethnicity from the respondent, 0=otherwise) that we apply in a models testing for influence across the entire sample. Second, we provide measures of the specific composition of that partnership. Given the number of race-by-race combinations (4 x 4 = 16), we opt to focus on the most common combinations, those that include White and non-White adults. Further, we highlight the role of race of the respondent to allow for comparisons between respondents in same race marriages and interracial marriages. We therefore include covariates for the following combinations (respondent's race listed first, spouse/partner's race listed second): White-White, White-Black, White-Asian, and White-Latino partners. For Black respondents, we highlight Black-White, Black-other non/Black, Black-Black. We provide a similar range of categories for Asian and Latino respondents.

*Nativity*. We include detailed measures of nativity and citizenship. We combine variables on birth within or outside of the U.S. with information on citizenship to create a measure with three categories: U.S. Born (reference), foreign born citizen, and foreign born not a citizen.

Socioeconomic status. We include three measures of socioeconomic status – employment, education, and income. Education is coded into four categories of the respondent's highest level of education: less than high school (reference), high school, some college, and college degree and above. We also provide a covariate for those missing on education, which captures less than one percent of the sample. Employment information is taken from the "Corrected employment status last week" variable. Respondents are coded as employed (working with or without pay for a job or business or currently employed though not at work as of the time of the survey), unemployed (looking for work), and not in the labor force (not working and not

looking for work). Unknown labor force status is included as a missing category (n<200), which is included in the models. Finally, we provide covariates for categories of family income: less than 35k, 35,000-74,999, and 75k or more. We also provide a covariate indicating missing income, including 14.8 percent of respondents.

*Geography*. We also include one measure of geography, region of residence (South=0; other regions=1).

#### Analyses

Our multivariate analysis estimates the likelihood of a being a former smoker or a current smoker relative to having never smoked. To accommodate a trichotomous dependent variable, we employ multinomial logistic regression. The IHIS provides sampling information (e.g. strata, person weights, and clusters) that account for the complex survey design employed by the NHIS when collecting data. All descriptive and multivariate analyses presented in this paper apply these design effects to limit the impact of sampling error on our estimates of standard errors and significance tests using svy commands in Stata (Version 12).

#### Results

Table 1 shows the distribution of the sample's characteristics. We find that less than twenty percent of the sample are current smokers, 56.6 % never smoked and 25.4 % are former smokers. In terms of race/ethnicity, the sample is largely White (75%), with Latinos (12%) and Blacks (8%) encompassing the next largest groups. While this is less diverse than the population of U.S. adults, it reflects the diversity of those currently in co-resident relationships. About half of the sample is female, on average in its latter 40's, and slightly less than 8 percent are cohabiting with a partner. Interracial unions are somewhat rare, including only seven percent of

partnered adults. This sample is also largely U.S. born (83%) and has, on average, a moderate level of socioeconomic attainment. Nearly one third is college educated, two thirds are employed, and over one-third has a family income of over \$75,000. Regional distribution reflects that of population, with the largest in the South and the next largest in the Midwest and the western United States.

#### Race, Interracial Unionship and Smoking

Table 2 shows the distribution of smoking behavior for each race/ethnic category, by interracial union status (interracial union vs. in-racial union), and for each race by interracial union status. Race clearly divides smoking behavior, as prior literature has demonstrated. While Table 1 shows that slightly more than half of the partnered adult population never smoked, this strongly reflects the behaviors of White adults, who are most likely to be either current or former smokers, with a rate of about 19% and 28% respectively, and have the lowest rate of never smoking (52%). Meanwhile Blacks, as other analyses have shown, have comparable rates of current smoking at approximately 19 percent, but are less likely to have quit smoking (17%) and are more likely to never have smoked (63%) than Whites. Asians and Latinos stand out as seventy percent or more of these groups have never smoked, meanwhile less than 10 percent of Asians are current smokers and only 13 percent of Latinos are current smokers.

The un-adjusted patterns above reveal strong race/ethnic cleavages in smoking behavior. Next, we aim to understand if these differ if adults are partnered or married across race/ethnicity. In the next panel, we show the distribution of smoking behavior in the sample overall for those in interracial and same-race unions. The rate of current smoking is higher among those in interracial unions (21% vs. 18%), the reverse is true for former smoking (22% vs. 25%), and the

rate of never smoking is equal across these two groups. The patterns across race/ethnicity, however, reveal more dramatic differences. Across all groups, the rate of current smoking is higher among those living with a racially different partner or spouse and most groups have a lower rate of quitting smoking (i.e., being a former smoker), and a lower rate of never having smoked. For example, 19 percent of Whites with White partners/spouses are smokers compared to 22 percent of interracially partnered Whites. The difference is even more pronounced among Blacks, as only 18 percent of those with Black partners are current smokers, but 28 percent of those with non-Black partners smoke. The rates of former smoking is slightly lower for those in interracial unions, with the exception of Latinos, where those in interracial unions have a higher rate of quitting compared to those with Latino partners (22 % vs. 15%). Adults who never smoked are more commonly partnered within race, particularly for Asians. Over 70 percent of Asians with Asian partners.

Thus far we find that those in mixed-race unions are more likely current smokers, but these unadjusted patterns mask the roles of a variety of demographic, acculturative, and socioeconomic factors that shape smoking behavior. We next turn to our multivariate analyses, which adjust for these issues, and explore whether interracial union status is independently related to smoking behavior.

#### Multivariate Results

Table 3 shows the results of the multinomial logistic analysis with the whole sample, predicting smoking behavior while adjusting for race/ethnicity, interracial unionship, and other background characteristics. We show only two models, the baseline model with very basic controls adjusted and our full model, adjusting for all of our independent variables (the full model building sequence is available upon request). The "baseline model" shows the adjusted relative risk ratios of interracial union status, adjusted for race/ethnicity, age, gender, and year of survey. The full model reveals the effects of all of our covariates. We focus our discussion on the impact on interracial unionship.

According to this baseline model, presence in an interracial union is positively associated with current and former smoking. Every group under consideration (Blacks, Latinos, and Asians) is less likely to be a former smoker or a current smoker when compared to Whites. Independent of their race, gender, or age, those in interracial relationships are 30 percent more likely than those in homogenous unions to be former smokers when compared to those who never smoke and 33 percent more likely to be current smokers.

In the full model, we introduce several background controls in an effort to explain the elevated rate of current and former smoking among interracial couples. Background controls operate in expected directions, for example, those who are foreign born are less likely to engage in smoking than the U.S. born. Cohabiters are more likely to be former smokers (OR=1.31) and more than twice as likely as married respondents to be current smokers as opposed to never smokers (OR=2.52). Socioeconomic status indicators show that higher SES is associated with less smoking. Education is negatively related to smoking status, while the unemployed are more likely to be former smokers and far more likely to be current smokers (OR=1.82). Similarly, the more income one has, the less likely they are to be a current smoker. We find less evidence of strong regional variation. Living in the south is associated with greater risk of current smoking by a small margin (OR=1.07) and associated negatively with former smoking.

Independent of these characteristics, those in interracial unions are still significantly more likely than their same-race peers to be former (RRR=1.26) and current smokers (RRR=1.29). We also find that this elevated risk varies across race. The last model on Table 3, we introduce a series of interaction effects between race of respondent and interracial union status. We find positive effects for Asians and Latinos in current and former smoking and for Blacks for current smoking. This indicates that smoking rates are not only elevated among those in interracial unions, but this appears to be especially the case for adults of color. In the tables that follow, we explore these patterns for each group. We construct three samples, each constrained to only two race/ethnic groups, and observe the effects for a series of interracial combinations.

#### Same-Race vs. Interracial: Group-specific comparisons

Table 4, 5, and 6 present our two-group analyses. We begin with the sample inclusive of only Black and White respondents (see Table 4) where we include effects for Blacks with Black partners, Blacks with White partners, Blacks with Other (not White or Black) partners, and then Whites with Black partners, and Whites with Other (not Black) partners. The reference category is Whites with White partners but we also note where couples stand out from Blacks with Black partners (noted with a superscript <sup>a</sup>). We show the baseline and the fully adjusted model only and apply the same series of background characteristics as was done in the previous table.

We find that the lower risk of smoking shown for Black respondents is Table 3 is driven mostly by homogamous Black couples, whose risk of being a former smoker is nearly half that of Whites in homogamous couples and whose risk of currently smoking is 24 percent lower. Blacks with White partners are less likely than Whites with White partners to be former smokers (RRR=0.70) but *more likely* than homogamously partnered Whites to be current smokers

(RRR=1.30). Interestingly, they are also more likely than homogamously partnered Blacks to be current smokers. Similarly, Whites with Black partners are also more likely to be former (RRR=1.31) and current (RRR=1.61) smokers when compared to Whites in same-race relationships.

According to the full model, Blacks with White partners/spouses are less likely than Whites with White spouses/partners to be former smokers. Background characteristics explain this heightened tendency toward current smoking, when compared to homogamously married Whites. This group, though, is still more likely than homogamously partnered Blacks to be current smokers. Whites who are married or cohabiting with other African Americans, however, continue to be more likely to be current smokers by a significant margin (RRR=1.23). According to these results, those in unions crossing the White-Black divide seem to have worse smoking behaviors relative to homogamously married Whites.

Table 5 presents the smoking behaviors of couples where at least one sample adult is either Asian or White. As was evident in Table 3, Asians present the greatest smoking differences from Whites as very few Asians smoke. Asians with Asian spouses have exceedingly low risk of having quite smoking (RRR=0.36) or being a current smoker (OR=0.29) relative to Whites with White spouses. Not surprisingly, Asians with White spouses/partners are far less likely than homogamous Whites to have quit smoking (RRR=0.51) or be a current smoker (RRR=0.42). However, they are also more likely than Asians with Asian partners/spouses to smoke or to have quit smoking. For Whites, having an Asian spouses or partner does depress the risk of being a current smoker (RRR=0.62), even as the risk of former smoking is comparable to other homogamously married Whites (RRR=1.05).

Table 6 focuses on Latinos and Whites. Latinos are less likely to smoke than Whites regardless of race of spouse, though the lowest risk is clearly attained by same race married/partnered Latinos. Latinos who are married/partnered to Whites have a close to comparable risk of former smoking to Whites (RRR=.90), but are less likely to be current smokers (RRR=0.71). When compared to homogamously partnered Latinos, however, they are more likely to be either former or current smokers. Interestingly, Whites with Latino partners are not distinctive from Whites in same race partnerships. Their relative risks are very close to 1.00 and not significant. Also of note is that these patterns do not shift with the adjustment of background characteristics. We observe close to equivalent relative risk ratios in both models.

#### Discussion

Thus far, our analyses reveal that interracial unionship, an understudied social tie, is an important correlate of smoking behavior. Just as smoking behaviors are sensitive to attachment to co-ethnic communities, those who cross race/ethnic lines in mate selection have higher risks of smoking relative to their same-race counterparts. Interestingly, this occurs for many groups regardless of gender or age. Additionally, adjusting for background characteristics such as union type (cohabiting vs. married), nativity, and socioeconomic status does not explain this pattern (see Table 3). Further, we find that these patterns do vary by race/ethnic background, with some elevation in smoking behavior for certain groups and no elevation for others.

Ultimately, we find three types of patterns that we will disentangle in our full paper. First, we find a pattern of *interracial unionship associated with an increased risk of smoking behavior*. For all groups of color, partnership with Whites corresponded with a greater relative risk of being a current smoker than their respective peers in homogamous unions, though mostly still

lower than the risk of homogamously married/partnered Whites. For Whites, interracial unionship was only associated with a greater risk of current smoking for those who have Black partners. While smoking behaviors for intermarried Asians and Latinos suggests an extension of an acculturative influence, acculturation and acculturative stress is generally not tested among African Americans. The consistency of these patterns, however, suggests some parallel between the significance of interracial cultural contact and health behaviors for racial and ethnic minority groups. However, because elevated smoking rates occur solely among Whites with Black partners, there may be additional stressors occurring for Whites (e.g., the loss of White privileges) that are specific to the circumstance of having a Black partner.

The second pattern is one where *interracial unionship corresponds to lower risk* of smoking. This characterizes the pattern of Whites with Asian partners, who are less likely than Whites in homogamous relationships to be current smokers. Notably, this is the only group where interracial union ship was associated with less smoking. As Asians have the lowest rates of smoking, this may be a case that those who opt to engage this community for mate selection are apt to have similar health behaviors profiles (i.e. not be smokers). Finally, we find evidence of *interracial unionship corresponding to no difference in risk* of smoking. This is the pattern for Latino-White relationships, where Whites in these relationships are as likely as Whites in same-race relationships to be smokers. Latinos, on the other hand, are significantly less likely in the adjusted model, but the relative risk ratio is not as small as it is for Latinos in same-race unions.

#### Proposed analyses

We identify two issues that likely drive the patterns we have observed, which we will explore more thoroughly in our revised draft of the paper.

- 1. Interracial unionship as an extension of acculturation: First, interracial unionship may coincide with higher levels of smoking, especially for Latinos and Asians, due to its link to overall processes of acculturation. As mixed ethnic/racial relationships are an index of assimilation (Kalmijn 1998) and smoking behavior tends to climb with greater acculturation, the elevated rates of smoking may be a result of its acculturative influence. We will investigate this through assessing the roles of multiple proxies of acculturation (i.e. years in the U.S., language used at interview) as well as investigating whether the link between smoking and interracial unionship is intensified for those who are the most acculturated.
- 2. The gendered impact of interracial unionship impact on smoking: In addition, we will focus on disentangling the results by gender. There are established gender differences in smoking behaviors and decision-making and levels of influence within a relationship are typically gendered (Sandman et al. 2000; Homish and Leonard 2005). It is unclear what this would look like for interracial couples who contend with gender norms on a landscape of ethno-racial difference. As we have outlined above, interracial unionship tends to coincide with a higher risk of smoking for non-White adults compared to their same-race married peers. Does this occur equally for men and women? Are both gender groups equally likely to stand apart from their respective race/ethnic group's profiles or are women more likely than men, for example, to iterate more closely to a specific group?

#### Limitations

Several limitations warrant mentioning. Smoking behaviors are highly correlated between married and partnered spouses and may result from assortative mating (i.e. individuals selecting

romantic partners with similar smoking behaviors) and shared environments that may influence behaviors. Accordingly, we are unable to examine the causal influence of interracial unions on smoking (i.e. we are not investigating whether partnering across race causes one to smoke or cease smoking). Rather, we seek to investigate whether those who cross racial/ethnic lines have distinctive patterns of smoking behaviors. Other issues beyond the scope of this paper suggest that interracial couples experience a greater level of stress and discrimination, which may elevate their likelihood of smoking. For example, interracial couples also have distinctive likelihood of marital disruption, they are more socially isolated, encounter more surveillance or open hostility from outsiders, and are more often perceived as inauthentic or tangentially connected to monoracial minority communities. Beyond conditions of stress, interracial unionship in adulthood has often followed prior interracial relationships in the past, suggesting greater intercultural exposure.

Taken together, differences in smoking behavior that emerge may not be explainable with standard demographic, acculturative, and socioeconomic characteristics. Our primary goal for this work is to document the extent and degree to which interracial unionship divides racial/ethnic patterns of smoking behavior.

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Race/Ethnicity of Respondent	%	f
White	75.6	99,088
Black	7.7	12,978
Asian	4.4	7,097
Latino	12.3	25,819
Demographic Characteristics		
Female	49.2	74,789
Age	48.8	48.6
Survey taken after 2005	55.6	71,379
Living with partner	8.4	12,502
In Interracial Union	7.1	12,123
Nativity		
U.S. Born	83.8	115,893
Foreign born Citizen	7.9	13,239
Foreign Born not a Citizen	8.2	15,693
Education		
Less than High School	13.6	23,107
High School	27.7	39,950
Some College	27.2	38,677
College Degree and Above	30.9	42,194
Missing	0.7	1,054
Employment		
Employed	66.5	93,707
Unemployed	2.8	4,063
Not in Labor Force	30.7	47,014
Unknown	0.1	198
Income		
<35k	19.8	33,188
35k-75k	30.7	44,564
75k+	34.8	45,251
Income Missing	14.8	21,979
Region of Residence		
Northeast	18.2	24,178
Midwest	24.5	33,398
South	36.1	52,831
West	21.3	34,575
Smoking Categories		
Never	56.6	84,016
Former	25.4	35,782
Current	18.0	25,184

 Table 1. Descriptive Statistics of the Sample (n=144,982), National Health Interview Survey (2001-2011)

Note: Percentages are weighted, frequencies are unweighted.

Race of Respondent	Current	Former	Never
White	19.17	28.26	52.57
Black	19.39	17.48	63.13
Asian	9.34	14.26	76.4
Latino	13.15	16.63	70.21
In an Interracial Union			
Yes	20.60	22.49	56.91
No	17.82	25.60	56.58
Race of respondents & Interracial Union S	tatus		
White			
Interracial Union	22.66	25.27	52.07
Whites w/ White partners	19.01	28.40	52.59
Black			
Interracial Union	28.77	15.68	55.55
Blacks w/ Black partners	18.44	17.66	63.90
Asian			
Interracial Union	12.17	15.66	72.17
In-racial Union			
Latino			
Interracial Union	17.59	22.69	59.71
Latinos w/ Lat. partners	12.21	15.35	72.44

# Table 2. Smoking Status and Interracial Unionship

	Baseline		Full Model		Full Model + Race Interactions	
	Former vs. Never	Current vs. Never	Former vs. Never	Current vs. Never	Former vs. Never	Current vs. Never
Race/Ethnicity						
Black	0.54***	0.78***	0.52***	0.57***	0.51***	0.53***
Asian	0.37***	0.31***	0.49***	0.62***	0.46***	0.59***
Latino	0.51***	0.44***	0.54***	0.39***	0.48***	0.35***
Demographic						
Female	0.53***	0.63***	0.51***	0.61***	0.51***	0.59***
Age	1.03***	0.99***	1.03***	0.99***	1.08***	1.14***
Survey Taken After 2005	0.94***	0.92***	0.91***	0.92***	0.91***	0.90***
Interracial Unions status						
Interracial Union	1.30***	1.33***	1.26***	1.29***	1.06	1.05
Nativity						
Foreign, Citizen			0.80***	0.58***	0.81***	0.58***
Foreign, non-Citizen			0.71***	0.54***	0.74***	0.56***
Missing on Nativity			0.67	0.53*	0.67	0.51*
Cohabitation			1.31***	2.52***	1.36***	2.70***
Education						
High School Diploma			0.93**	1.01	0.92***	0.99
Some College			1.03	0.79***	1.03	0.79***
College Degree			0.62***	0.24***	0.62***	0.25***
Not in the Labor Force			1.05**	0.94*	1.11***	1.11***
Unemployed			1.16**	1.81***	1.16**	1.77***
Income (ref=35K or less)						
35k-75k			1.06**	0.77***	1.04	0.71***
75k+			1.05*	0.55***	0.99	0.46***
Missing on Income			0.86***	0.56***	0.84***	0.51***
South			0.93***	1.07***	0.93***	1.07***
Interactions						
Black*Interracial					0.99	1.42***
Asian*Interracial					1.35**	1.29
Latino*Interracial					1.74***	1.92***
Constant	0.14***	0.94	0.18***	1.95***	0.07***	0.08***
Number of Observations		144,982		144,982		144,982

Table 3. Multinomial Logistic Regression Results of smoking behavior on Race/ethnicity, Interracial union status and background characteristics.

Asterisks indicate significance according to a two-tailed test'\*\*\*p<.001, \*\*p<.01, \*p<.05

	Baseline		Full Model		
	Former vs. Never	Current vs. Never	Former vs. Never	Current vs. Never	
Black-Black	0.54***	0.76***	0.51***	0.52***	
Black-White	$0.70^{**^a}$	1.30* <sup>a</sup>	0.63***	$0.84^{a}$	
Black-Other Spouses	0.46***	0.97	0.42***	0.69*	
White-Black	1.31*	1.68***	1.21	1.23*	
White-Other	1.06	1.04	1.04	1.01	
Age	1.06***	1.07***	1.07***	1.14***	
Age Squared	1.00***	1.00***	1.00***	1.00***	
Female	0.57***	0.69***	0.55***	0.65***	
Survey Taken After 2005	0.94***	0.93**	0.90***	0.91***	
Nativity					
Foreign, Citizen			0.85***	0.61***	
Foreign, non-Citizen			0.82**	0.70***	
Missing on Nativity			0.59	0.73	
Cohabiting			1.37***	2.83***	
Education					
High School Diploma			0.91***	0.99	
Some College			1.00	0.77***	
College Degree			0.60***	0.24***	
Not in the Labor Force			1.15***	1.15***	
Unemployed			1.13	1.80***	
Family Income (ref=35K a	or less)				
35k-75k			1.00	0.66***	
75k+			0.95	0.43***	
Missing on Income			0.82***	0.47***	
South			0.92***	1.06**	
Constant	0.07***	0.14***	0.08***	0.09***	
Number of Observations		112.066		112.066	

Table 4. Multinomial Models Predicting Smoking behavior for Black and White adults, adjusting for the racial composition of the Couple

Asterisks indicate significance according to a two-tailed test: \*\*\*p<.001, \*\*p<.01, \*p<.05 <sup>a</sup> Indicates significant difference in relative risk compared to Blacks with Black partners

	Base	eline	Full Model	
Race/ethnic composition of couple (ref=White-White)	Former vs. Never	Current vs. Never	Former vs. Never	Current vs. Never
Asian-Asian	0.36***	0.29***	0.41***	0.45***
Asian-White	$0.51^{***a}$	$0.41^{***a}$	$0.58^{***a}$	$0.64^{**a}$
Asian-Other Race	$0.67^{*a}$	$0.62^{*a}$	$0.67^{*a}$	0.69
White-Asian	1.05	0.62***	1.11	0.79*
White - Other	1.08	1.22***	1.03	1.07
Age	1.06***	1.07***	1.07***	1.13***
Female	0.56***	0.68***	0.54***	0.63***
Survey Taken After 2005	0.94***	0.93**	0.90***	0.92***
Foreign, Citizen			0.93	0.72***
Foreign, non-Citizen			0.88*	0.88
Missing on Nativity			0.56	0.67
Cohabiting			1.43***	2.93***
Education				
High School Diploma			0.91***	1.00
Some College			1.01	0.77***
College Degree			0.60***	0.24***
Not in the Labor Force			1.13***	1.13***
Unemployed			1.13	1.85***
Income (35k or less)				
35k-75k			1.03	0.69***
75k+			0.97	0.44***
Missing on Income			0.83***	0.48***
South			0.93***	1.08**
Constant	0.09***	0.15***	0.09***	0.10***
Number of Observations		106,185		106,185

Table 5. Multinomial Models Predicting Smoking behavior for Asian and White adults, adjusting for the racial composition of the Couple

Asterisks indicate significance according to a two-tailed test: \*\*\*p<.001, \*\*p<.01, \*p<.05 <sup>a</sup> Indicates significant difference in relative risk compared to Asians with Asian partners

	Baseline		Full Model	
	Former vs. Never	Current vs. Never	Former vs. Never	Current vs. Never
Latino-Latino	0.47***	0.42***	0.45***	0.33***
Latino-White	0.91 <sup>a</sup>	$0.75^{***a}$	$0.90^{*a}$	$0.71^{***a}$
Latino-Other Spouses	$0.71^{*a}$	$0.65^{**a}$	$0.67^{**a}$	$0.51^{***a}$
White-Latino	1.05	0.94	1.03	0.90
White-NH Non-White	1.10	1.27***	1.07	1.18**
Age	1.06***	1.07***	1.07***	1.13***
Age squared	1.00***	1.00***	1.00***	1.00***
Female	0.55***	0.66***	0.53***	0.62***
Survey Taken After 2005	0.94**	0.92**	0.91***	0.91***
Foreign, Citizen			0.89**	0.66***
Foreign, non-Citizen			0.78***	0.59***
Missing on Nativity			0.84	0.66
Cohabiting			1.39***	2.76***
Education				
High School Diploma			0.91***	0.99
Some College			1.01	0.77***
College Degree			0.60***	0.24***
Not in the Labor Force			1.11***	1.11***
Unemployed			1.15*	1.79***
35k-75k			1.04	0.73***
75k+			0.98	0.46***
Missing on Income			0.83***	0.50***
South			0.94**	1.09***
Constant	0.54***	0.36***	0.09***	0.09***
Number of Observations		124,907		124,907

Table 6. Multinomial Models Predicting Smoking behavior for Latino and White adults, adjusting for the racial composition of the Couple

Asterisks indicate significance according to a two-tailed test: \*\*\*p<.001, \*\*p<.01, \*p<.05 <sup>a</sup> Indicates significant difference in relative risk compared to Latinos with Latino partners