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Psychometric evaluation of an abbreviated version of the Intragroup Marginalization Inventory

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Abstract

Tobacco and marijuana use among U.S. young adults is a top public health concern and racial/ethnic minorities may be at particular risk. Past research examining cultural variables has focused on the individual in relation to the mainstream U.S. culture, however an individual can also experience within-group stress, or intragroup marginalization. We used the 2014 San Francisco Bay Area Young Adult Health Survey to validate an abbreviated measure of intragroup marginalization and identify associations between intragroup marginalization and tobacco and marijuana use among ethnic minority young adults (N=1058). Exploratory Factor Analysis was conducted to identify factors within the abbreviated scale and logistic regressions were conducted to examine relationships between intragroup marginalization and tobacco and marijuana use. Two factors emerged from the abbreviated scale. The first factor encompassed items related to belonging and membership, capturing if individuals experienced marginalization due to not fitting in because of physical appearance or behavior. The second factor encompassed whether individuals shared similar hopes and dreams to their friends and family members. Factor 1 (membership) was associated with increased odds of marijuana use (OR = 1.34, $p < .05$) and lower odds of using cigars (OR = 0.79, $p < .05$), controlling for sociodemographic factors. Results suggest that young adults may use marijuana as a means to build connection and belonging to cope with feeling marginalized. Health education programs focused on ethnic minority young adults are needed to help them effectively cope with intragroup marginalization without resorting to marijuana use.

Keywords

ethnic minority; young adults; intragroup marginalization; tobacco; marijuana

Tobacco and marijuana use among U.S. young adults is a top public health concern (Chen & Jacobson, 2012); young adults use both substances at higher rates than any other age group

(Cohn, Villanti, Richardson, Rath, Williams, Stanton, & Mermelstein, 2015; Rath, Villanti, Abrams, & Vallone, 2012; Doll, Peto, Boreham, & Sutherland, 2004; Ling, Neilands, & Glantz, 2009). The transition to young adulthood increases the susceptibility to engaging in health-risk behaviors including tobacco and marijuana use (Pearso, Richardson, Niaura, Vallone, & Abrams, 2012; Rath et al. 2012). Non-cigarette tobacco product use (e.g., e-cigarettes, cigarillos, and hookah) has increased among young adults in the past several years (SAMHSA 2013; McMillen, Maduka, & Winickoff 2011; Soneji, Sargent, & Tanski, 2016; U.S. Department of Health and Human Services, 2014). Similarly, trends demonstrate an increase in marijuana use over the past decade (Hasin et al. 2015; U.S. Department of Health and Human Services 2014). In 2013, 37% of all young adults in the U.S. ages 18–25 reported currently using some form of tobacco (SAMHSA, 2013). Additionally, 19.1% of young adults reported using marijuana in the past 30 days in 2013 (SAMHSA, 2013). Tobacco use has been associated with cancer, heart disease, lung disease, and reproductive effects (U.S. Department of Health and Human Services, 2014), and marijuana use has been associated with cognitive impairment, cardiovascular disease, impaired respiratory functioning, and adverse psychosocial development and mental health (Hall & Degenhardt, 2009; NIDA 2016). Given the prevalence of these behaviors among young adults and their considerable health and social consequences, it is important to better understand factors associated with use, including whether shared cultural values, or feelings of marginalization with respect to such values may help explain high rates of use (Chen & Jacobson, 2012).

Among young adults, members of racial/ethnic minority groups are at especially high risk for certain types of tobacco use, such as cigarette and marijuana use, as well as higher rates of co-use (Holmes, Popova, & Ling, 2016; Ramo, Liu, and Prochaska, 2012; SAMHSA, 2013; U.S. Department of Health and Human Services, 2014; U.S. Department of Health and Human Services 1998; Wu, Swartz, Brady, Hoyle, & Workgroup, 2015). Additionally, racial/ethnic minorities suffer disproportionately from tobacco-related illness and death, despite having higher rates of light and intermittent smoking compared to Non-Hispanic Whites (Jemal et al. 2008; Trinidad, Perez-Stable, Emery, White, Grana, & Messer, 2009; U.S. Department of Health and Human Services, 1998). Racial and ethnic differences also exist in tobacco and marijuana use across groups. African American young adults have higher rates of current little cigar use compared to other racial/ethnic groups, while Latin young adult males report higher rates of current and lifetime e-cigarette use (Lariscy, Hummer, Rath, Villanti, Hayward, & Vallone, 2013). Current use of any tobacco product and marijuana use is highest for Mixed Race individuals (Holmes, Popova, and Ling, 2016; SAMHSA, 2013; Wu, Swartz, Brady, Hoyle, & Workgroup, 2015).

Race/ethnicity related stressors -- stressors that are a function of the cultural background and the context of the individual that are unique to being a member of a racial/ethnic minority group -- can make racial/ethnic minority young adults susceptible to tobacco and marijuana use (Kam, Cleveland, & Hecht, 2010; Williams, Neighbors, and Jackson 2003). For example, perceived racial/ethnic discrimination is a type of racial/ethnic stress that has been linked to increased smoking (Williams, Neighbors, and Jackson 2003) and higher odds of lifetime marijuana use (Borrell, Jacobs, Williams, Pletcher, Houston, Kiefe, & 2007). The National Conference on Tobacco and Health Disparities highlighted a need for researchers to examine the social and cultural context of tobacco use among racial/ethnic groups (Fagan,

King, Lawrence, Petrucci, Robinson, Banks, Marable, & Grana, 2004). Past research has also stressed the problematic perspective of viewing tobacco or marijuana use as an isolated problem, rather than being viewed as a part of a larger, more complicated picture that includes social and cultural components (Duff, 2003; Lunnay, Ward, & Borlagdan, 2011; Spooner, Hall, & Lynskey 2001). Additionally, health promotion researchers note that culturally specific interventions are important in addressing smoking-related health disparities. Culturally specific interventions refer to the degree to which ethnicity, attitudinal and behavioral norms, shared beliefs, history, and environment are integrated into the intervention (Resnicow, Baranowski, Ahluwalia, & Braithwaite, 1999). For example, the *Pathways to Freedom* is a smoking cessation guide developed for African Americans that incorporates known smoking patterns of African Americans, religious quotes, pictures of African Americans, and emphasizes family and community (Robinson, Orleans, James & Sutton, 1992).

Definitions of culture vary, but for the context of this paper, we focus on race/ethnicity, and the shared characteristics within these groups, which comprise religion, language, and nationality. The historical experiences of different racial/ethnic groups create unique physiological and social characteristics that can include lifestyle and value systems (Hays & Erford 2014; Napier et al., 2014). Past research examining cultural variables has primarily focused on racial/ethnic minority individuals in relation to the dominant culture, or mainstream U.S. culture, (i.e. discrimination, racism, acculturative stress), however an individual can also experience stress emanating from tensions within their own racial/ethnic group. This phenomenon, known as intragroup marginalization, refers to the perceived interpersonal distancing by members of one's racial/ethnic group when the individual diverges from racial/ethnic norms (Castillo, Conoley, Brossart, & Quiros, 2007). Deviating from racial/ethnic norms can create a backlash whereby group members reject or distance themselves from the individual. The interpersonal distancing occurring from intragroup marginalization can be viewed as a social sanction placed on the individual and can take the form of teasing and criticism. Intragroup marginalization is based on social identity theory (Tajfel & Turner 1986) suggesting that group members marginalize in-group members when they do not conform to group standards in order to maintain the uniqueness and stability of the group (Abrams, Marques, Bown, & Henson 2000). Group members displaying behaviors or attitudes that conflict with group norms can be perceived as threatening the distinctiveness of the group and can then be marginalized in order to preserve the group's distinctiveness.

Intragroup marginalization may be experienced by any racial/ethnic group. Additionally, family, friends, and other racial/ethnic members in the community can all impose group norms and engage in the process of intragroup marginalization. Limited research suggests intragroup marginalization may lead to higher levels of acculturative stress, or stress associated with adapting to a new culture, and increased alcohol use among young adults (Castillo, Cano, Chen, Blucker, & Olds, 2008; Castillo, Zahn, & Cano 2012; Llamas & Ramos-Sanchez 2013; Llamas & Morgan Consoli 2012). Past research, while not directly investigating intragroup marginalization, has made potential links between familial and peer stress with tobacco and marijuana use (e.g., Wills, Knight, Pagano, & Sargent 2015; Zapata Roblyer, Grzywacz, Cervantes, & Merten, 2016; Vitaro, Wanner, Brendgen, Gosselin, &

Gendreau, 2004). Foster and Spencer (2013) suggest that marijuana and other drug use may underlie a deeper need for connection in the absence of close familial connections for marginalized young adults, or young adults that have been rejected by their families. These young adults may be seeking opportunities to connect and create a sense of belonging, and marijuana use can play a common and significant social role in building supportive and caring relationships (Foster & Spencer 2013). Researchers further contend that investigation is needed to better understand how culture impacts these young adults' drug use (Foster & Spencer 2013).

Currently, intragroup marginalization is measured using the Intragroup Marginalization Inventory (Castillo et al. 2007), which is comprised of three separate scales measuring perceived intragroup marginalization from the heritage culture family (12-items), friends (17-items), and other members of the individual's ethnic group (13-items). The inventory is comprised of 42-items rated on a 7-point Likert scale (*never/does not apply [1] to extremely often [7]*). The scale items were developed so that the scale could be tailored to any ethnic group (e.g., 'Chinese friends tell me that I am not really Chinese because I don't act Chinese').

While the scale is comprehensive, the length of the survey can make it difficult for researchers to distribute the entire inventory, with many opting to use only one scale in their research (e.g., Castillo et al., 2008; Castillo, Zahn, & Cano, 2012; Llamas & Morgan Consoli, 2012; Llamas & Ramos-Sanchez, 2013). In practice this has limited studies of intragroup marginalization to focus either on family members or friends, rather than examining both. Due to the length of the survey, the feasibility of using the measure in large-scale studies or with large sample sizes has been limited. Most studies using the inventory have limited sample sizes focused on one racial/ethnic group (under 400 participants; e.g., Castillo et al., 2007; Llamas & Morgan Consoli, 2012; Llamas & Ramos-Sanchez, 2013). Greater sample sizes allow for segmentation of the data across demographic characteristics (i.e. race/ethnicity, gender, etc.), reduce the margin of error, and provide the statistical power to conduct more advanced analyses. In addition, some items may have less applicability for certain groups, such as items related to linguistic expectations (e.g., 'Family members criticize me because I don't speak my ethnic group's language.'). Lastly, the inventory was developed and validated with a college population and has not been validated with non-college populations (Castillo et al., 2007). Tobacco and marijuana use are problematic for all young adults and intragroup marginalization may be an important factor in understanding tobacco and marijuana disparities in this population as a whole. Yet, without an efficient means to assess intragroup marginalization, this important construct will continue to remain absent within health disparities research.

Current Study

Limited research addresses whether shared cultural values or feelings of marginalization may help explain high rates of tobacco and marijuana use among young adults (Chen & Jacobson 2012; Foster & Spencer 2013). The purpose of this study is to provide a psychometrically sound abbreviated measure of intragroup marginalization. Such a measure would have great utility when survey length is of concern and the survey needs to be

distributed across diverse racial/ethnic groups. This study tests and validates an abbreviated measure of the Intragroup Marginalization Inventory, which we refer to as the IMI-6. The IMI-6 consists of six items that measure perceived intragroup marginalization from the heritage culture family and friends. The items of the IMI-6 are hypothesized to have content validity, as items were taken directly from the existing scale, which has already been found to have content validity and were selected in consultation with the survey developer and by the primary author whose research focuses on racial/ethnic minority issues and intragroup marginalization in specific. We hypothesize that the IMI-6 also has construct validity, which we establish in this study through exploratory factor analyses. In addition to testing the feasibility of using this abbreviated measure, a primary aim of this study was to apply the IMI-6 and examine relationships between intragroup marginalization and tobacco and marijuana use. We hypothesize that participants reporting more experiences of intragroup marginalization would be more likely to use cigarettes, e-cigarettes, cigars, blunts, hookahs, and marijuana.

Method

Item selection

The original Intragroup Marginalization Inventory consists of three scales: Family, Friend, and Ethnic Group. The scales have a common factor structure, and while there are slight differences in items and factor names, they fall into five general factors: Homeostatic Pressure (pressure to not change), Linguistic Expectations (expectations that one speak the native language), and Accusations of Assimilation (accusations of adopting values and beliefs of White American culture), Accusations of Differentiation (accusations of looking or acting different), and Discrepant Values (values are too different from the group). The IMI-6 consists of six items that measure perceived intragroup marginalization from the heritage culture family and friends. The original scale developer provided consultation during item selection, ultimately reviewing and approving the final six items. Items were selected based on the researchers' and developer's experience with the survey as well as those items that had the greatest applicability to a diverse pool of respondents and were broad enough to remain appropriate for different racial/ethnic groups. Items from the Accusations of Assimilation and Linguistic Expectations factors were not included as they contained items that were tailored to specific racial/ethnic groups (i.e. an item from the Accusations of Assimilation was relevant only to Latina/os, "Friends from my ethnic group tell me that I am brown on the outside, but white on the inside"). Items from the Homeostatic Pressure were similar to items from the Accusations of Differentiation factor, however items from the Homeostatic Pressure focused solely on the individual's behavior, while items from the Accusations of Differentiation included items assessing both behavior *and* appearance. The selected items were taken from the Discrepant Values factor and the Accusation of Differentiation factor of the full inventory (see Table 1). Two items were taken from the Discrepant Values factor assessing whether family and friends have the same hopes and dreams as the respondent. Four items were taken from the Accusation Differentiation factor assessing whether family and friends accuse the respondent of not really being a member of one's ethnic group because s/he does not *look* like and *act* like members of the group. Responses were rated on a 7-point Likert scale, ranging from 'never/

does not apply' (1) to 'extremely often (7).' Items 3 and 6 were reverse coded, so that higher numbers represent greater experiences of intragroup marginalization. Items were piloted with 45 young adults (ages 18–26) from the San Francisco Bay Area. Participants were recruited from local bars on a Thursday, Friday and Saturday evening to be interviewed that same weekend and received a \$75 incentive if they participated in a one-hour focus group, completed the pilot questionnaire, and engaged in an interview with project staff to share feedback about the questionnaire. Individuals reviewed the item clarity and representation of their experiences. No items were altered and participant feedback suggested that the selected items accurately captured participant experiences.

Participants and procedure

Sample—This study used data we collected in 2014 as part of the San Francisco Bay Area Young Adult Health Survey, a probabilistic multi-mode household survey of 18–26 year old young adults, stratified by race/ethnicity (Holmes, Popova, & Ling 2016). The study was conducted in Alameda and San Francisco Counties in California. We identified potential respondent households using address lists from Marketing Systems Group (MSG; sample 1) in which there was an approximately 30–40% chance that an eligible young adult resided at a selected address (n=15,000 addresses). We used 2009–2013 American Community Survey and 2010 decennial census data in a multistage sampling design to identify Census Block Groups and then Census Blocks in which at least 15% of residents were Latino or non-Hispanic Black adults in the eligible age range. Ultimately, we randomly selected 61 blocks, then households within these blocks (n=1,636 housing units) then young adults within eligible households (sample 2). We oversampled these blocks because young nonwhite urban adults are among the most difficult populations to survey (Tourangeau, Edwards, Johnson, Wolter, & Bates, 2014), and we wished to ensure appropriate population representation.

We surveyed in three stages and utilized four modes of contact (mail, web, telephone, face-to-face). In the first stage we conducted a series of three mailings with sample 1 households; respondents returned paper questionnaires or completed surveys online using Qualtrics. In the second stage we telephoned those who did not respond to mail, and lastly we performed face-to-face interviews with a random selection of the remaining nonresponders (n≈1,250) from sample 1 as well as all of the households identified in sample 2. Potential sample 2 respondents did not participate in the mail or telephone phases of the survey; each of these households was visited in person. The final sample consisted of 1,363 young adult participants, for a response rate of approximately 30%, with race, sex and age distributions closely reflecting those of the young adult population overall in the two counties surveyed. Ethnicity/race was measured using items from the Census Bureau's American Community Survey instrument, with participants first asked to identify if there were Hispanic, Latino, or Spanish origin and then to select their race from 14 categories. Race/ethnicity was then collapsed into mutually exclusive categories including Hispanic, non-Hispanic White, non-Hispanic black, non-Hispanic Asian/Pacific Islander and Mixed Race. Those who selected more than one race/ethnic category (e.g. Black and Latino; Japanese and White, etc.) were categorized as Mixed Race. We constructed individual sample and post-stratification adjustment weights during data reduction (Holmes, Popova, and Ling 2016).

Measures

Outcomes—We evaluated associations between intragroup marginalization and current use of cigarettes, cigars, blunts (hollowed out cigars filled with marijuana), hookah, e-cigarettes and marijuana. Each outcome measure was dichotomized and set equal to ‘1’ if a respondent reported using the product in question at least once in the past 30 days.

Main Explanatory Variables

Covariates: Age in years since birth was measured continuously (18–26), sex was measured dichotomously with male set equal to ‘1’ and female to ‘0’, and maternal education was set equal to ‘1’ if the respondent’s mother had completed at least a bachelor’s degree and ‘0’ otherwise. Race/ethnicity was measured as an indicator variable with mutually exclusive categories including Hispanic, non-Hispanic black, non-Hispanic Asian/Pacific Islander and Mixed Race (those who identified as two or more races). We restricted our analysis to young adults in these categories, excluding non-Hispanic white as the intragroup marginalization inventory has only been used and validated among nonwhite populations previously and endorsement of intragroup marginalization was not expected among this population (Castillo et al.,2007).The resulting number of observations was 1058, or 78% of the total sample.

Statistical Analysis

To examine the items in the abbreviated measure we conducted an exploratory factor analysis(EFA).Due to the exploratory nature of our analysis we chose to conduct an EFA rather than confirmatory factor analysis (CFA). CFA is useful to extract latent factors from a set of items based on an a priori theory. This requires a strong empirical or conceptual foundation and a pre-specification of the number of factors pattern of factor loadings. As we are using these items in a relatively innovative fashion, we wanted to determine, without specifying a structure, how the items were related.We conducted an EFA using an oblique geomin rotation (Fabrigar et al. 1999) in *Mplus*.EFA methods typically follow “rules of thumb,” with factor loading cutoff criteria ranging from .30 to .55, to establish a solid factor loading coefficient (Swisher, Beckstead, & Bebeau, 2004); we used a cutoff value of .55 in this study.The number of factors retained was based on eigenvalues >1. Internal consistency was examined by computing Cronbach’s α for the entire measure and each subscale. Second, we fit multinomial logistic regression models using SAS SURVEYLOGISTIC (SAS, 2008)to account for the complex survey design. This was repeated with six dichotomous outcomes (cigarette use, e-cigarette use, blunt/wraps, hookah and marijuana use,) in two steps:1) unadjusted analysis (factors were the sole predictors), and 2) controlling for race/ethnicity, age, sex and mother’s highest education.

Results

Sample information

Weighted percentages (or means) and standard error of percent (or standard error of the mean) are presented in Table 2. Approximately one-third of the sample retained for analysis was Latino, 40% was non-Hispanic Asian/Pacific Islander, 15% was non-Hispanic Black and the remaining 10% reported being of two or more races.Close to half of all participants

endorsed feeling marginalized by friends because they did not look (43%) or act (49%) like members of their racial/ethnic group. Approximately a quarter of participants endorsed feeling marginalized by family members because they did not look (23%) or act (27%) like members of their racial/ethnic group. Most participants reported having similar hopes and dreams as their friends (95%) and family (84%).

Exploratory Factor Analysis and Internal Consistency

The EFA indicated two factors (eigenvalue factor 1 = 2.970, eigenvalue factor 2 = 1.591, and eigenvalue factor 3 = 0.688). As show in Table 3, every item loaded above 0.60 on at least one factor. Factor 1 might be described as looking or acting like your ethnic group and was composed of items 'Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't look like my ethnic group,' 'Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't act like my ethnic group,' 'Family members tell me I am not really a member of my ethnic group because I don't look like my ethnic group,' and 'Family members tell me I am not really a member of my ethnic group because I don't act like my ethnic group.' Factor 2 appears to represent hopes and dreams and was composed of the two items 'Friends and peers in my ethnic group have the same hopes and dreams as me,' and 'My family has the same hopes and dreams as me.' The Cronbach's α for the entire IMI-6 was 0.66. Cronbach's α s were computed for each subscale and found to be: Factor 1, .81; and Factor 2, 0.71.

Mean IMI factor scores by race/ethnicity are presented in Table 4. A regression analysis was conducted to determine mean differences in IMI factor scores by race/ethnicity (Table 5). A significant difference in means scores was found by race/ethnicity for Factor 1, $F(8, 1050) = 20.02$, $p < .001$, $R^2 = 0.04$. Latinos had greater mean scores for Factor 1 than Non-Hispanic Blacks [$t(8) = 4.43$, $p < .01$] and Non-Hispanic Asian/Pacific Islander [$t(8) = 3.81$, $p < .01$]. Mixed Race individuals had greater mean scores for Factor 1 than Non-Hispanic Blacks [$t(8) = -5.00$, $p < .01$] and Non-Hispanic Asian/Pacific Islander [$t(8) = -2.99$, $p < .05$]. No significant difference in means scores was found by race/ethnicity for Factor 2, $F(8, 1050) = 1.81$, $p = 0.22$, $R^2 = 0.005$.

IMI-Discriminant Validity

Non-Hispanic whites were not expected to report intragroup marginalization and not included in the factor and regression analyses as the full inventory has only been used and validated among nonwhite populations. To demonstrate the discriminant validity of the measure two t-tests were conducted. Non-Hispanic Whites were compared to the rest of the sample on the two factors. Non-Hispanic Whites experienced significantly lower scores on discrimination for both factor 1 (1.26 vs. 1.92, $p < .0001$) and factor 2 (3.26 vs. 3.71, $p < .0001$).

IMI-6 in Unadjusted Logistic Regressions

Results varied by outcome such that no significant relationship was found between the two factors and cigarette use, e-cigarette use or blunt use. However, Factor 1 was related to hookah, marijuana and cigar use. Higher scores on Factor 1 were related to higher odds of hookah use (OR = 1.26, 95% CI = 1.07, 1.48) and marijuana use (OR = 1.37, 95% CI = 1.05,

1.79), but lower odds of cigar use (OR = 0.81, 95%CI = 0.70, 0.93). Factor 2 was related to lower odds of hookah use (OR = .85, 95%CI = 0.72, 0.99).

IMI-6 in Multinomial Logistic Regressions

When controlling for race/ethnicity, age, sex and mother's education the results were consistent with the unadjusted models, except that Factor 1 and 2 were no longer associated with hookah use. No significant relationships were found for cigarettes, e-cigarettes, or blunts. When adjusting for covariates, Factor 1 and 2 were no longer associated with hookah use. However, the associations with marijuana and cigar use were robust; Factor 1 was associated with increased odds of marijuana use (OR = 1.34, 95%CI = 1.02, 1.76), and lower odds of using cigars (OR = 0.79, 95%CI = 0.71, 0.87).

Discussion

Results support the use of an abbreviated measure of intragroup marginalization. The IMI-6 was found to be psychometrically sound and representative of the full construct of intragroup marginalization as theorized by Castillo and colleagues (2007). Two factors emerged from the abbreviated scale. The first factor encompassed items related to belonging and membership, capturing whether individuals felt marginalized due to deviations in their physical appearance or behaviors (i.e., hobbies, interests). The second factor encompassed whether the individual shared similar hopes and dreams as their families and friends. These factors reflected similarly identified factors from the validation study of the full inventory scales (Castillo et al., 2007), suggesting good agreement between the original measure and the abbreviated version.

Examining racial/ethnic differences in mean scores across factors demonstrated significant differences in Factor 1. Latinos and Mixed Race young adults experienced greater intragroup marginalization related to not looking or acting like members of their racial/ethnic group compared to non-Hispanic Blacks and Asian Americans/ Pacific Islanders. The full Intragroup Marginalization Inventory (Castillo et al., 2007) was developed with a diverse sample (Asian American, Black/ African American, Latino, Native American and Biracial) and past research has explored intragroup marginalization with African Americans (e.g. Thompson et al. 2010), Asian Americans (e.g., Castillo et al., 2012) and Latinos (e.g., Castillo et al., 2008); however, specific racial/ethnic differences have not been examined.

Latinos may be particularly susceptible to intragroup marginalization given the heterogeneity among Latinos in terms of national origin, physical appearance, political ideology, immigration status, and class status (Fry, 2002; Johnson, Farrell, & Guinn, 1997). In particular, Latinos can encompass different racial groups (i.e. Afro-Latino, Asian Latino, etc.), which can contribute to differences in appearance one of the concepts captured in Factor 1. Physical appearance can limit the extent to which people are accepted as belonging to a certain racial/ethnic group, which is also especially relevant for multiracial individuals, whose physical appearance may not align with any specific ethnic/racial group (Ahn Allen, Suyemoto, & Carter, 2006). Additionally, multiracial individuals describe feeling marginalized from peers rooted in having different appearance, culture, and/or beliefs than

their peers (Jackson,2010), explaining the higher rates of intragroup marginalization observed in this study.

Research examining young adult tobacco and marijuana use often relies on college samples, thereby neglecting individuals in this age group that may be at greater risk of substance use (e.g., Moran, Wechsler, & Rigotti, 2004; Morrell, Cohen, Bacchi, & West, 2005; National Cancer Institute, 2008; Rigotti, Lee, & Wechsler, 2000). The Intragroup Marginalization Inventory, which may have particular utility with young adults who are negotiating the stresses of transitioning to adulthood, was also developed and tested with a college-only sample (Ferenczi & Marshall, 2014). This study validates an abbreviated version of the IMI, the IMI-6, which was developed to capture tensions experienced within racial/ethnic groups. We tested the IMI-6 in a large representative household sample of racially/ethnically diverse young adults in the San Francisco Bay Area in order to better understand the impact of cultural stressors on tobacco and marijuana use among young adults in general.

When controlling for demographic characteristics, Factor 1 (membership) was associated with greater marijuana use. Participants who felt that they did not look or act like members of their racial/ethnic group demonstrated increased odds of marijuana use. Young adults who feel marginalized by family members or friends may seek to find a way to belong and connect with other young adults and marijuana use may be a way to find belonging within a group. This parallels research, which suggests that the decision to engage in marijuana use comes from an internal need for emotional connection and friendship (Pilkington, 2007) and as an opportunity to connect and create a sense of belonging (Foster & Spencer, 2013). Other research has identified marijuana as a more acceptable substance viewed as superior and safer than other substances (Foster & Spencer, 2013). Marijuana may be the substance of choice to build connection with others and combat feelings of intragroup marginalization.

If marijuana use is perceived as a means for social connection, it may help to explain the findings between Factor 1 (membership) and cigar use. When controlling for demographic characteristics, participants who felt as though they did not look or act like members of their racial/ethnic group had decreased odds of cigar use. Cigars were the least frequently used product within the sample retained for analysis. National averages parallel this trend with current cigar use (10%) having lower prevalence than to cigarettes (31%) and marijuana (19%) for young adults (SAMHSA, 2013). If marginalized young adults seek to connect with others via substance use, cigar use may not be the best mechanism by which to connect with others and therefore they may be less likely to use cigars. The combination of low rates of use and potential lack of opportunity to build social connection may help explain the decreased odds of cigar use. This finding is unexpected and further research is needed to better understand the relationship between intragroup marginalization and cigar use.

Similarly, cigarette, e-cigarette, blunt use, and hookah use had lower rates compared to marijuana use. While unexpected, cigarette, e-cigarette, and blunt use were not associated with experiences of intragroup marginalization. This may be due in part to the lower rates of use. It is worth noting that blunt use was examined independently, although it is often associated with marijuana use and in this sample most blunt users also reported concurrent marijuana use (104 of 109 blunt users). Additionally, the use of these substances may be less

overlooked in intragroup marginalization studies. Mixed Race participants were not required to identify which group served as the primary source of intragroup marginalization. However, it is possible that different cultural norms around tobacco and marijuana use could influence whether intragroup marginalization impacted behavior. Oyserman and colleagues (2007) have demonstrated the identity-based motivation of health behaviors, with racial/ethnic minorities more likely to identify unhealthy behaviors with their group. Additional research may be needed with Mixed Race individuals to better understand how different groups may impact the relationships between intragroup marginalization and tobacco use. A final limitation is that we did not directly assess reasons or motivations for use. Future qualitative research is needed to explicitly examine motivations for use as a result of experiences of intragroup marginalization.

This study provides the first quantitative examination of intragroup marginalization with tobacco and marijuana use. Results respond to recent calls to better understand motivations for young adult marijuana use (Holmes et al., 2016), with findings demonstrating an association between intragroup marginalization and increased marijuana use. These findings are especially relevant given the changing climate regarding the legalization of marijuana, with California just recently voting to legalize marijuana (NORML, 2016). Results reaffirm existing arguments that drug policy must attend to the social and cultural contexts of use (Duff, Moore, Johnston, & Goren, 2007; Foster & Spencer, 2013). Additionally, findings respond to existing calls in the literature to better understand how culture impacts use (Foster & Spencer 2013). Past intervention research has highlighted the importance of attending to peer smoking behavior and norms, providing further support for the need to attend to social dynamics when addressing young adult tobacco and marijuana use (Kalkhoran, Lisha, Neilands, Jordan, & Ling, 2016). Additional research is needed to further investigate the relationship between intragroup marginalization and marijuana use, which can help in the tailoring and development of targeted health education programs.

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Table 1.

Item section for the IMI-6 by factor from the full Intragroup Marginalization Inventory

	Accusations of Differentiation	Discrepant Values
IM1. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	x	
IM2. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	x	
IM3. Friends and peers in my ethnic group have the same hopes and dreams as me.		x
IM4. Family members tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	x	
IM5. Family members tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	x	
IM6. My family has the same hopes and dreams as me.		x

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Table 2.

Weighted sample characteristics

	Percent (SE of %)	Mean (SE)
Intragroup Marginalization		
IM1. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	42.72 (2.6)	2.24 (25.43)
IM2. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	48.94 (2.6)	2.43 (26.11)
IM3. Friends and peers in my ethnic group have the same hopes and dreams as me.	95.35 (0.8)	3.05 (24.73)
IM4. Family members tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	22.86 (1.7)	1.48 (14.97)
IM5. Family members tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	27.48 (2.0)	1.71 (19.29)
IM6. My family has the same hopes and dreams as me.	84.33 (2.0)	3.42 (27.05)
Demographics		
Race/Ethnicity		
Latino	35.14 (15.0)	
Non-Hispanic Black	14.94 (8.7)	
Non-Hispanic Asian/Pacific Islander	40.33 (16.8)	
Mixed Race	9.60 (3.2)	
Male	48.78 (3.4)	
Mother's Education		
College graduate or more	66.94 (3.4)	
No college graduation	33.06 (3.4)	
Age		22.60 (0.23)
Outcomes		
Cigarette use	11.69 (2.8)	
E-cigarette use	13.46 (3.6)	
Cigar use	7.86 (2.5)	
Blunt/wrap use	10.79 (2.4)	
Hookah use	11.05 (2.0)	
Marijuana use	24.89 (4.4)	

Note: SE = standard error

Table 3.

Factor loadings from exploratory factor analysis with oblique rotation

	Factor 1	Factor 2
1. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	0.775	-0.407
2. Friends and peers in my ethnic group tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	0.826	-0.311
3. Friends and peers in my ethnic group have the same hopes and dreams as me.	-0.001	0.798
4. Family members tell me I am not really a member of my ethnic group because I don't look like my ethnic group.	0.946	0.011
5. Family members tell me I am not really a member of my ethnic group because I don't act like my ethnic group.	0.857	0.051
6. My family has the same hopes and dreams as me.	0.045	0.676

Note: Factor loadings >.50 are boldfaced

Table 4.

Means and standard errors of IMI factor scores by race/ethnicity

	Factor 1		Factor 2	
	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>
Latino	2.10	0.04	3.81	0.07
Non-Hispanic Black	1.64	0.10	3.99	0.50
Non-Hispanic Asian/Pacific Islander	1.82	0.05	3.64	0.05
Mixed Race	2.57	0.23	3.82	0.22

Note: SE = standard error

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Table 5.

Mean differences of IMI factor scores by race/ethnicity

		Factor 1			Factor 2		
		M _{diff}	SE	t	M _{diff}	SE	t
Latino	Non-Hispanic Black	0.46	0.10	4.43 ^{**}	-0.18	0.48	-0.39
Latino	Non-Hispanic Asian/Pacific Islander	0.28	0.07	3.81 ^{**}	0.17	0.08	2.06
Latino	Mixed Race	-0.46	0.24	-1.98	-0.01	0.20	-0.04
Non-Hispanic Black	Non-Hispanic Asian/Pacific Islander	-0.18	0.11	-1.67	0.35	0.48	0.73
Non-Hispanic Black	Mixed Race	-0.93	0.19	-5.0 ^{**}	0.18	0.42	0.43
Non-Hispanic Asian/Pacific Islander	Mixed Race	-0.75	0.25	-2.99 [*]	0.24	0.24	-0.74

Notes: SE = standard error

^{*}
 $p < .05$,^{**}
 $p < .01$

Table 6.

Correlations of IMI factor scores and tobacco use variables

	1	2	3	4	5	6	7	8
Factor 1	—	-.06	.08*	.02	-.01	.02	.09**	.07*
Factor 2		—	.02	.04	.03	.04	-.04	.02
Cigarette use			—	.37**	.25**	.32**	.20**	.27**
E-cigarette use				—	.20**	.27**	.33**	.34**
Cigar use					—	.33**	.14**	.37**
Blunt/wrap use						—	.17**	.65**
Hookah use							—	.24**
Marijuana use								—

* Notes: $p < .05$,**
 $p < .01$

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