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The Influence of Ethnic/Racial and U.S. National Identification on Cannabis User
Prototype Perceptions and Willingness Among Mexican American Young Adult Users

A Thesis in partial satisfaction of the requirements for the degree of Master of Arts

in

Psychological Sciences

by

Selina Espinoza

Committee in charge:

Professor Anna E. Epperson, Chair

Professor Mayra Y. Bamaca

Professor Martin Hagger

2024

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2024

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Abstract

The Influence of Ethnic/Racial and U.S. National Identification on Cannabis User Prototype Perceptions and Willingness Among Mexican American Young Adult Users

by Selina Espinoza for the partial satisfaction of the requirements for the degree of

Master of Arts in Psychological Sciences

University of California, Merced 2024

Dr. Anna E. Epperson, Chair

Acculturation is a multidimensional process that entails the retainment of one's heritage culture and/or adoption of a new culture (e.g., practices, values, and identifications). Previous research has found that an individual's ethnic or racial identification, often used as a measure of acculturation for immigrant populations, may be a protective factor against substance use. In contrast, specific aspects of U.S. culture are associated with a greater likelihood of increased substance use. Cannabis is the most used substance in the U.S. and Latinx young adults may be at risk for unhealthy use. The current study examined the influence of ethnic/racial and U.S. national identification on perceptions of the typical cannabis user and willingness to use cannabis in the future. Young adults aged 18-26 ($n = 397$; 77% female, 68% second generation immigrant) who self-identified as Mexican American and as having had used cannabis at least once in the past were recruited from an online research platform and a university undergraduate research pool. Independent-samples t-tests indicated that male participants reported greater U.S. national identification ($p < .001$), favorability towards a typical cannabis user (i.e., prototype favorability; $p < .05$), willingness to use cannabis in the future ($p < .001$), and lower prototype similarity ($p < .001$) compared to female participants. Regression analyses indicated that participants who reported stronger ethnic/racial identification had more favorable perceptions of a typical cannabis user (i.e., a prototype) compared to those with lower ethnic/racial identification. In addition, greater cannabis user prototype favorability was associated with greater willingness to use cannabis. Participants who reported using cannabis in the past week, typically used cannabis in combination with alcohol and other substances, those who spoke mostly Spanish at home, who identified as female, and participants from the online web panel were more likely to report greater willingness to use cannabis in the future. Participants who reported stronger U.S. national identification were less likely to report willingness to use cannabis in the future in comparison to their counterparts. No association was found with ethnic/racial identity. More research is needed to further determine the mechanisms by which identity is associated with perceptions of risk and use of cannabis use among Mexican American young adults with the aim of aiding in prevention and cessation of cannabis abuse among this community.

Introduction

Cannabis, also known as marijuana, is the most widely used substance in the United States (U.S. National Institute of Drug Abuse, 2019). According to the National Survey on Drug Use and Health, the rate of past year cannabis use for individuals ages 12 and older in the U.S. doubled from 11% in 2002 to 22% in 2022 (Substance Abuse and Mental Health Services Administration, 2019). More than half of the U.S. states have legalized medicinal and/or recreational cannabis, specifically with the allowance of purchase at 18 years or older with a physician's recommendation for medical cannabis and 21 years or older for recreational cannabis (State of California Department of Cannabis Control, n.d.). The changing policies at the state level have influenced increased consumption. In a review of studies describing how state cannabis policy impacts substance use, Smart and Pacula (2019) found that there were increases in cannabis use among adults following medical cannabis law enactment at the state level.

Potentially most at risk by the rapidly changing cannabis legal landscape are younger adults (i.e., those ages 18-26 years old; Wadsworth et al., 2022). Utilizing data from the 2017 and 2018 National Survey on Drug Use and Health, Carlini and Schauer (2022) found that individuals, ages 18 to 25 years old, reported the highest prevalence of cannabis use compared to older age groups (26-49 years, ≥ 50 years) including the highest prevalence of cannabis-only use and the highest prevalence of poly use of cannabis and other substances. Substance use (e.g., cannabis) among young adults, who are still physically developing, increases the risk of health issues. Adverse health effects associated with cannabis use include cognitive and psychomotor impairment, chronic bronchitis, increased symptoms of anxiety and depression, and increased risk for cardiovascular disease (Hall, 2015). Differences in cannabis use also exist among ethnic/racial groups such as the Latinx (also referred to as Hispanic). According to the 2020 National Survey on Drug Use and Health, past-year cannabis use among Latinx young adults (age 18-25 years) has increased over the last few decades. In addition, past-year cannabis use among Latinx adults more generally has increased as more states have legalized recreational cannabis use (Martin et al., 2021).

Cannabis Use Disparities Among Latinx

Hispanic is a broad term that includes individuals whose heritage is from Mexico, Puerto Rico, Cuba, Dominican Republic and countries in Central and South America (Ailinger, 1988). According to De Guzman (2017), the term Latinx signifies “gender nonconformity, coalitions across borders, boundaries, and status, and unity not only across differences but also across legislated and/or policed divisions” and “the x is everything and anything, all the excluded.” The current paper will henceforth use the term Latinx to refer to all individuals who identify as Hispanic and/or Latinx. As of 2019, approximately 1 in 5 individuals identifies as Latinx (U.S. Census Bureau, 2019). The subgroup of focus in the current study is Mexican Americans, who were born in either the United States or Mexico and identify as having connections to Mexico (Flanagin et al., 2021; Lampe, 1984; Trevino, 1987). In 2022, Mexican Americans represented 11.2% of the U.S. population and accounted for about 24% of the 45.3 million foreign-born immigrants that resided in the U.S. in 2021 (U.S. Census Bureau, 2022; Rosenbloom & Batalova, 2022).

Consumption of cannabis may be a coping strategy in response to stressors facing this population, including issues around immigration and other hardships endured (e.g., acculturative stress, stigmatization; Leow et al., 2006). Immigrants, especially those of color, face even more challenges when adapting to a new country. For example, in the U.S., these challenges include high rates of poverty, difficulty finding jobs, discrimination, racism, trauma, and issues around acculturation, such as language difficulty (Schwartz et al., 2010). These hardships have the potential to impact general health and health behaviors (e.g., cannabis use). Previous research has had mixed findings due to various factors such as the specific ethnic/racial group studied, measures of acculturation (e.g., place of birth, generation status, language), and form of substance (Salas-Wright et al., 2018; Schwartz et al., 2010; Meca & Schwartz, 2020). For example, studies that applied a bidimensional approach of acculturation found that a stronger Latinx orientation was associated with a lower risk for cannabis use (Unger et al., 2009, 2014). Another study found that with increased time in the U.S. and exposure to the host culture, immigrants had an increased likelihood of engaging in risk behaviors, including substance use (Rumbaut, 1999). In addition, immigrants who had been in the U.S. for 10 years or longer reported substance use rates similar to that of the general U.S. non-immigrant population (SAMHSA, 2004).

Previous research has also consistently shown that foreign-born individuals initially demonstrate better health indicators than their U.S. born counterparts, even after controlling for socioeconomic status and educational attainment (Leow et al., 2006). This phenomenon is sometimes referred to as the Immigrant or Latinx Paradox (Coll & Marks, 2011; Hofferth & Moon, 2016; Oh et al., 2021; Vega et al., 1998), and demonstrates the potential role of acculturation on substance use outcomes (Amaro et al., 1990; Bui, 2013; Salas-Wright et al., 2014; Salas-Wright et al., 2018; Salas-Wright et al., 2018). Notably, foreign-born adolescents and adults report lower rates of substance use compared to their U.S.-born counterparts (Lundgren et al., 2019; Salas-Wright & Vaughn, 2014).

Latinx Acculturation

One factor that may be associated with substance use, such as cannabis, among Latinx individuals is acculturation. Acculturation is the “process of culture change and adaptation that occurs when individuals with different cultures come into contact” (Gibson, 2001). According to Schwartz and colleagues (2010), acculturation is a multidimensional process that entails independent dimensions of retaining heritage-culture and/or adopting the host culture’s practices, values, and identifications. Culture practices include language use, social affiliation, media preferences, and cultural customs and traditions. Examples of identification include an attachment to a cultural group and positive esteem drawn from those attachments. Lastly, values include belief systems associated with a specific context or group. The traditional, unidimensional process of acculturation considers the process of retaining and rejecting the three components of culture as opposing ends of a single continuum (Gordon, 1964).

The majority of acculturation and substance use research has used unidimensional conceptualizations and demographic proxies of acculturation (e.g., generational status, language use; Schwartz et al., 2010). To address this limitation, the current study incorporated a bidimensional model of acculturation, focusing on the retention of heritage identification (i.e., ethnic/racial identity) and adoption of host culture identification (i.e.,

U.S. national identity) among Mexican American young adults. Obtaining aspects of the receiving culture does not imply that the individual will abandon their own cultural heritage, rather it implies that they may straddle between two cultural worlds (Berry, 1980). Although some studies have implemented a bidimensional conceptualization of acculturation with Latinx samples, the focus to date has been primarily on examining adolescent substance use (Meca & Schwartz, 2020). In the current study, the focus is on young adults.

Ethnic/Racial and U.S. National Identity

Ethnic/racial identity is generally referred to one's ethnic/racial group membership and is conceptualized as a component of one's overall identity which will vary in terms of importance among individuals (Umaña-Taylor, 2011). Ethnic/racial identity is a construct that ranges from simple self-identification labels (e.g., Mexican American) to complex and multifaceted typologies based on multiple components (e.g., exploration, commitment/resolution, affirmation; Phinney, 1996; Umaña-Taylor et al., 2002). Exploration entails increasing one's understanding and exposure to one's heritage group by engaging in various activities such as reading about one's ethnic/racial background, talking to others about one's ethnic/racial group, and/or searching for information about one's ethnic/racial group (Umaña-Taylor et al., 2004). Commitment towards one's ethnic/racial identity refers to an individual's understanding regarding what their ethnic/racial group membership means to them and to what extent it plays a vital role in their life (Erikson, 1968; Marcia, 1980). Lastly, affirmation pertains to whether individuals feel positively or negatively about their ethnic/racial group membership (Tajfel, 1981; Umaña-Taylor et al., 2004).

National identity is a singular construct that is comprised of two components (Schildkraut, 2005, 2007, in press) and its meaning differs across contexts and historical periods (cf. Bronfenbrenner, 1979). Like ethnic/racial identity, national identity (for this study, the focus is on national identity in the U.S.) is both an individual construction and a collective identification (individuals identifying with a social group; Ashmore et al., 2004; Spinner-Halev & Theiss-Morse, 2003; Theiss-Morse, 2009). As supported by previous research, the two components that comprise national identity include exploration of a sense of what a person's national identity means to her or him and commitment to and affirmation of a sense of what it means to belong to that group (Ong et al., 2010).

Although measures of U.S. or "American" identity have been used in the literature, psychometrically sound and widely applicable American identity measures have not been available (Schwartz et al., 2012). Example markers of being American from this literature include U.S. Census data measures (e.g., Citrin et al., 2007), prototypical American beliefs (e.g., universal rights, civic participation, and valuing of diversity; Devos & Banaji, 2005; Weisskirch, 2005), questions asking how American participants consider themselves (Gong, 2007), or questions about the extent participants engage in American civic behaviors (e.g., voting and serving on juries when called; Stepick et al., 2008). In contrast, the current paper measured U.S. national identity by assessing commitment to one's identity.

Using only a self-identification label as opposed to the multidimensional framework of identification does not capture the important variability within groups.

Previous research has reported links between these varying degrees of ethnic/racial identification and individuals' psychosocial and health outcomes (e.g., ethnic discrimination, anxiety, depression, substance use; Umaña-Taylor, 2011). Therefore, it is critical to clarify the extent to which ethnic/racial and U.S. national identity are protective (or not) towards substance use among Latinx young adults.

Ethnic/Racial Identity, U.S. National Identity, and Substance Use

Although previous studies have indicated a link between acculturation and substance use among Latinx adolescents and adults in the United States (Ortega et al. 2000; Salas et al, 2005; Salas-Wright et al. 2015; Unger et al., 2009, Unger et al., 2014; Vega et al., 1998), research findings are inconsistent and unclear. In one study, ethnic identity was found to predict Mexican-heritage youths' substance use (i.e., alcohol, cigarettes, cannabis, inhalants), dependent on gender and length of time living in the U.S. (Kulis et al., 2012). Specifically, ethnic identity was a consistent buffer against substance use for boys in comparison to girls, and particularly among the boys who had lived longer periods of their lives in the U.S. (Kulis et al., 2012). Marsiglia and colleagues (2001) found that Mexican American and mixed-ethnicity students with a strong sense of ethnic (i.e., "pride") reported less drug use, while ethnically "proud" White students reported more. In a similar vein, low ethnic in adolescence was associated with higher rates of smoking among Puerto Rican adults in their mid-twenties (Brook et al., 2010).

In contrast, Zamboanga and colleagues (2009) found that ethnic identity was positively associated with the likelihood of cannabis, cigarette, and alcohol use among Latinx adolescents, where higher ethnic identity was associated with a higher likelihood of cannabis, cigarette, and alcohol use. Similarly, using the Multigroup Ethnic Identity Measure, higher levels of ethnic/racial identity were associated with heavy drug use among an ethnic/racial, minority (e.g., Asian, Black, Hispanic, Indian, Mixed) adolescent sample (James et al., 2000). Given the mixed evidence on the association between ethnic/racial identity and substance use and limited research among Mexican American young adults, more research is needed to address the gaps and clarify findings.

Regarding U.S. national identity and substance use, research evidence has been limited and mixed. Although adoption of U.S. cultural practices, values, and identification does not appear to pose a risk for health risk outcomes (Meca & Schwartz, 2020), specific aspects of U.S. acculturation lead to greater likelihood of increased substance use among Latinx and more specifically, youth. National data indicate that for Latinx born in the U.S., there are higher rates of substance use compared to those born in other countries (National Survey on Drug Use and Health, 2010) potentially demonstrating the role of acculturation on substance use. One study found that more acculturated Latinx (those who scored higher on acculturation measures) were more likely to engage in substance abuse compared with their less acculturated counterparts (Lara et al., 2005). In a selective literature review based on immigration, acculturation, and substance use conducted by Leow and colleagues (2006), increased time in the U.S. was found to be linked to deterioration of health status among foreign-born individuals. This finding is further supported by a study that examined the relationships between recency of immigration and substance use, and found that lifetime, proximal (past year), and recent (past 30 days) use of alcohol and cannabis was greater among adolescents born in the U.S. compared to those foreign born (Blake et al., 2001). Despite these

previous research findings on acculturation and substance use, discrepancies exist. Specifically, study results are inconsistent (Kulis et al., 2012; Meca & Schwartz, 2020; Zamboanga et al., 2009), complex, and not well understood (Lara et al., 2005). It is unclear whether effects of acculturation on substance use, specifically cannabis, are due to the adoption of the receiving culture and/or to loss/rejection of the heritage culture (Meca & Schwartz, 2020).

Theoretical Framework

The current study is in part guided by the Prototype Willingness Model (PWM), a dual-action model of cognition and predicates that future health behavior is influenced by three main factors: behavioral intentions, willingness to engage in a behavior, and prototype favorability and similarity (Gerrard et al., 2008). In particular, this theory focuses on willingness and perceptions of the typical user (i.e., prototype). Willingness is defined as an openness to engage in risky behavior and risk prototypes are images or words of people who engage in risky behaviors such as a typical smoker (Gerrard et al., 2008). According to the PWM there are two paths: the reasoned path and the social reaction path. The reasoned path involves analytic processing with behavioral intention as the proximal antecedent, and attitudes and norms as proximal predictors of intention to engage in a specific health behavior. The social reaction path involves heuristic processing, which is neither unconscious nor automatic, with behavioral willingness as the proximal antecedent. This path is more impulsive, affected by emotion, and is unique in which it includes images or words of prototypical person associated with a particular health behavior.

The PWM has been utilized extensively in substance use research (Bashirian et al., 2020; Bashirian et al., 2022; Dodge et al., 2023; Huckleberg et al., 2009; Linden-Carmichael et al., 2019; Rahimi & Javadi, 2018). Pertaining specifically to the social reactive pathway (i.e., willingness), Gibbons et al. (1991) found that individuals who were trying to quit cigarette smoking would consider the image of a typical smoker more negatively and would also consider themselves less similar to this typical smoker compared to smokers who were not trying to quit. Similarly, in a study that utilized the PWM to examine factors related to the onset of cigarette smoking among African American/Black children found that the participant's prototypes of the typical smoker were directly and positively associated with their willingness to smoke and willingness, in turn, was also directly related to cigarette smoking almost two years later (Gerrard et al., 2005). Cannabis use behavior has also been explored using the PWM (Boyle et al., 2023; Comello & Slater, 2010; Hampson et al., 2008). Lewis and colleagues (2018) examined the association between behavioral willingness to use cannabis, cannabis use, and negative consequences among a community sample of young adults. The researchers found that previous cannabis use was associated with future willingness to use. Additionally, having more favorable cannabis related prototype perceptions predicted future use.

The PWM has also been utilized to understand the association between racial identification and substance use. Stock and colleagues (2011) examined racial identity as a protective factor against substance use cognitions among African American/Black young adults in the context of racial discrimination. Findings indicated that discrimination was associated with higher levels of substance use risk cognitions among

participants, however, stronger racial identity was protective against this relationship (Stock et al., 2011). More recently, Stock and colleagues (2013) conducted a similar study that incorporated racial identification, racial composition, and substance use vulnerability among African American/Black adolescents and young adults. They found that racial identity was associated with lower favorability of the substance user prototype and in turn, lower substance willingness and use, but only among African American/Black adolescents who reported living in predominantly White neighborhoods.

To the author's knowledge, there has been a limited number of cannabis use research studies that tested the PWM among Latinx young adult individuals. For example, Hampson and colleagues' (2008) study examined the association between prototypes (i.e., social images) and cannabis use, and entailed a small sample of Latinx adolescents (7%) among the total sample. Similarly, in another study that examined the association between prototypes (i.e., social images) and smoking also included a low percentage of Latinx children (7.1%). In addition, research has examined other health behaviors, in the context of PWM (e.g., prototypes and willingness), such as alcohol use, cigarette use, electronic cigarette use, HPV vaccinations, physical activity, and COVID-19 prevention cognitions among Latinx individuals (Andrews et al., 2008; Hampson et al., 2007; Lewis et al., 2016; Pepper et al., 2013; Peterson et al., 2021; Peterson et al., 2022). (e.g., prototypes and willingness). Although previous cannabis research studies that utilized the PWM included a Latinx subsample within the overall sample, the focus has been primarily on children and adolescents. Furthermore, the current study will be the first, to our knowledge, to test constructs of the PWM among a sample of young adults who identify as Latinx and consume cannabis.

The Present Study

The purpose of the current study was to examine how acculturation, specifically ethnic/racial and U.S. national identification, influences perceptions of the typical cannabis user (i.e., prototypes) and willingness to use cannabis in the future among Mexican American young adults who had used cannabis in the past. This study examines the following: 1) the association between ethnic/racial and U.S. national identification with cannabis user prototype perceptions (prototype favorability and prototype similarity), 2) the association between ethnic/racial and U.S. national identification with willingness, and 3) the association between cannabis user prototype perceptions with willingness to use cannabis in the future. Based on previous research, it was hypothesized that: 1) ethnic/racial identification would be negatively associated with prototype perceptions; 2) U.S. national identification would be positively associated with prototype perceptions; 3) ethnic/racial identification would be negatively associated with willingness and U.S. national identification will be positively associated with willingness; and 4) prototype perceptions would be positively associated with willingness.

Method

Participants

Participant recruitment entailed 2 phases of data collection: 1) an online university undergraduate research participant pool (SONA), and 2) an online research panel (Prolific). Participants were first recruited from SONA (n = 567) in August-December 2022. SONA is a research participation and management tool recruiting

undergraduate students to partake in research studies. Participants were considered eligible if they were 18 to 26 years old, spoke and read in English, resided in the United States, identified as Mexican American, and had used cannabis at least once in the past. College students who completed the study were offered university course credit (or extra credit). Next, participants ($n = 387$) were recruited from Prolific in January 2023, an online panel platform for adult participant recruitment. Participants were considered eligible if they resided in the United States, were 18 to 26 years old, spoke and read in English, identified their nationality as being from the United States or Mexico, identified as Latinx, were born in the United States or Mexico, and had used cannabis at least once in the past. Prolific participants were compensated upon study completion. Data cleaning entailed the following criteria for participant exclusion from the final sample: 1.) did not consent, 2.) did not identify as Mexican American, and 3.) did not answer questions about identification, prototype perceptions, and willingness. After completing the data cleaning process, the final sample resulted in a total of 397 participants.

Procedure

Young adults who qualified for the study in either SONA or Prolific were asked to provide online consent. Those who agreed were then directed to an online survey hosted by Qualtrics, which was utilized for both participant recruitment platforms, and included questions on demographics, cannabis use, willingness to use cannabis, ethnic and national identification, and cannabis user prototype perceptions (i.e., prototype favorability & similarity). The project was approved by the University Institutional Review Board.

Measures

Cannabis Use. Cannabis use-related behaviors were measured from the Cannabis Engagement Assessment (CEA; Schuler & Hodgins, 2022). CEA is a 30-item measure that assesses the quantity, frequency of use, and method of consumption for dried cannabis products (excluding edibles), cannabis concentrates, and edible products in the previous 30 days; two additional sections assess history of use and other factors associated with cannabis use. Recent cannabis engagement (i.e. past 30 days) was measured with 1 item (“When did you last use marijuana?”). Response options include today, yesterday, in the past week, 1 to 2 weeks ago, 2 to 3 weeks ago, and 3 to 4 weeks ago. This was recoded to past week use compared to not having used in the past week. In addition to the last time of cannabis consumption, the current study utilized an item from the CEA to measure co-use with alcohol and/or other substances (“Do you typically use marijuana with alcohol or other substances?”). Response options include yes, no, and prefer not to answer. Because specific items were chosen to gather descriptive information rather than the full scale, no reliability analyses are reported.

Ethnic/Racial and U.S. National Identity. Ethnic/racial identity was measured using the Multigroup Ethnic Identity Measure-Revised (MEIM-R; Phinney & Ong, 2007). The MEIM-R is a 6-item measure of ethnic/racial identity that is assessed through exploration (3 items) and commitment (3 items) to one’s ethnic/racial identity on a 5-point scale from (1) strongly disagree to (5) strongly agree. Sample items include “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs” and “I feel a strong attachment towards my own ethnic group.” All items are listed in Table 1. The two subscales, which have three items each, and the overall

scale are calculated by averaging the item values. The two subscales had good reliability, with Cronbach's alphas of .76 for exploration and .78 for commitment (Phinney & Ong, 2007). The reliability for the overall scale of six items had an alpha of .81 (Phinney & Ong, 2007). Cronbach's alpha for the current study was .83 for exploration, .85 for commitment, and .89 for the overall scale.

U.S. national identity (i.e., American identity) was measured with the National Ingroup Identification measure (Lyons et al., 2010), a 9-item measure that is assessed through commitment (all items) of ingroup identification on a 7-point scale from (1) strongly disagree to (7) I strongly agree. All items are listed in Table 1. The reliability of this scale in previous research was good, with a Cronbach's alpha of .89 (Lyons et al., 2010). Cronbach's alpha for the current study was also good ($\alpha = .89$).

Prototype Favorability and Similarity. Cannabis prototype favorability was measured using a scale structured by Gibbons, Gerrard, and Boney-McCoy (1995). Participants were asked to imagine a typical cannabis user at their age and to rate from how unlikely (1) to how likely (7) they would attribute the following 12 different prototype-adjectives to this person: cool, sexy, popular, smart, self-conscious, independent, sympathetic, unattractive, immature, confused, self-centered, dull.

In order to connect the construct prototype similarity to the previous items, participants were asked afterwards how far they resemble the imagined prototype of a cannabis user on a 5-point Likert scale from not at all (1) to greatly (5). The reliability of this scale in previous studies has been good, with a Cronbach's alpha of .84 (Gibbons et al., 1995). Cronbach's alpha for the current study was fair ($\alpha = .72$).

Willingness. Willingness to use cannabis in the future was also measured using a scale structured by Gibbons, Gerrard, and Boney-McCoy (1995). Participants were given a description of a hypothetical scenario because willingness is a response to risk-conductive circumstances (Gerrard et al., 2008). Participants were asked how willing they would be to engage in an action that increased the level of risk with three scenarios: "Suppose you were with a group of friends and some of them were smoking marijuana. There is enough marijuana that you could have some if you wanted; how willing would you be: to try a little bit (item 1) ...smoke enough to get high (item 2) ...smoke one and take one for later (item 3)." Ratings for each option were rated on a 5-point Likert scale (1) not at all willing to (5) very willing. In previous studies, reliability of this scale was good, with a Cronbach's alpha of .84 (Gibbons et al., 1995); Cronbach's alpha for the current study was excellent ($\alpha = .91$).

Demographics. Participants answered questions about their age (18-26 years old), gender (male, female, transgender, and other), sexual orientation (heterosexual or straight, gay/lesbian/queer, bisexual, questioning, and not listed above), yearly household income (up to \$10,000, \$11,000-\$25,000, \$26,000-\$50,000, \$51,000-\$75,000, \$76,000-\$100,000, \$101,000-\$199,000, and over \$200,000), language mostly spoke at home (only English, mostly English, Spanish and English equally, mostly Spanish, only Spanish, and other language), country of birth (Mexico or United States), and parents country of birth (Mexico and/or United States). A variable was also created for data collection phase (panel type; SONA or Prolific).

Categorical variables were collapsed into binary (dichotomous) or dummy (polytomous) coded variables to reflect categories with the highest frequency within each

variable. Given small sample sizes for other gender identities, gender was recoded into female and male; similarly, sexual orientation was re-coded into only queer and heterosexual/straight. Language spoken at home was recoded to Spanish or English. Yearly household income was re-coded into 3 categories (low; < \$25,000 moderate; \$25,000 - \$75,000, and high; >\$75,000). Immigrant generation status was created using participants' country of birth (Mexico or United States) and parents' country of birth (Mexico and/or United States). Specifically, if the participant was born in Mexico, they were categorized as a first-generation immigrant. If the parent was born in Mexico and the participant was born in the U.S., they were categorized as second-generation immigrant, and if both the participant and parent was born in the U.S., they were considered third-generation immigrant.

Data Analysis

Data was cleaned and screened for missing values and normality in SPSS (IBM Corp., 2013). Missing data (less than 5% overall) on sexual orientation, cannabis use, alcohol and other substance use, income, prototype favorability, prototype similarity, and willingness were imputed using expectation-maximization (EM) algorithm multiple imputation analysis (Little, 1989). The purpose of using EM algorithm multiple imputation analysis is to estimate the parameters directly by maximizing the complete data log likelihood function (Dong & Peng, 2013). After data was cleaned, normality analyses were conducted (kurtosis and skewness). Variables were considered non-normally distributed if they exceeded a kurtosis value larger than 7 or smaller than -7 and/or a skew value larger than 2 or smaller than -2 (Kim, 2013). For the current study, all continuous scale data was normal.

Descriptive analyses were conducted using chi-square tests and independent sample t-tests comparing across gender (male/female) within each panel type (SONA/Prolific; Table 2). Pearson correlations were used to examine the univariate associations among the variables (Table 3). Associations between identifications (ethnic/racial and national), prototype perceptions, and willingness to use cannabis were examined using multiple linear regression analyses. Only covariates that were significantly associated with the outcomes in univariate analyses were included in final models: gender, sexual orientation, language spoken at home, past week use of cannabis, use of alcohol or other drugs, immigrant generation status, and panel type.

Results

Descriptive Findings

Most participants ($n = 397$) identified as female (77.3%), heterosexual/straight (72.5%), spoke mostly English at home (59.9%), were second generation immigrant (67.8%), had used cannabis in the past week (35.4%), and did not use alcohol and other substances when using cannabis (75.8%; Table 2).

Prototype Perceptions

Regression analyses were conducted to examine the association of ethnic/racial identification and U.S. national identification with prototype favorability, controlling for covariates (gender, sexual orientation, cannabis use, and panel type; Table 4). Ethnic identification ($\beta = .15, p < .001$), sexual orientation ($\beta = -.16, p < .05$), last use ($\beta = .30, p < .001$), and panel type ($\beta = .15, p < .001$) were significantly associated with prototype favorability (overall regression model: $F(6, 373) = 10.65, p < .001, R^2 = .15$).

Specifically, participants with greater overall ethnic/racial identification reported greater favorability towards a typical cannabis user (i.e., prototype) compared to those with lower ethnic/racial identification. In addition, participants who identified as queer (i.e., LGBTQ+), who had consumed cannabis in the past week, and those from the Prolific panel reported greater favorability of a typical cannabis user compared to their counterparts (heterosexual/straight, past week use of cannabis, and those from the SONA panel, respectively). U.S. national identification was not significantly associated with prototype favorability.

Regression analyses examining the association of ethnic identification and national identification with prototype similarity, controlling for the covariates gender, sexual orientation, immigrant generation status, and panel type indicated that only panel type ($\beta = -1.32, p < .001$) was significantly associated with prototype similarity (overall regression: $F(7, 369) = 23.80, p < .001, R^2 = .31$). Participants from the Prolific panel perceived themselves to be less similar to their perception of a typical cannabis user (i.e., prototype) compared to participants from the SONA panel. Ethnic/racial and U.S. national identification, gender, immigrant generation status, and sexual orientation were not significantly associated with prototype similarity.

Willingness to Use Cannabis

Regression analyses examining the association of ethnic/racial identification and U.S. national identification with prototype favorability, prototype similarity, and willingness, controlling for the covariates gender, language used most at home, past week cannabis use, alcohol and other use, immigrant generation status, and panel type as covariates, indicated that U.S. national identification ($\beta = -.15, p < .001$), prototype favorability ($\beta = .32, p < .001$), gender ($\beta = -.22, p < .05$), language used most at home ($\beta = .24, p < .05$), last use ($\beta = .74, p < .001$), alcohol and other use ($\beta = .32, p = .001$), and participant type ($\beta = 1.34, p < .001$) were significantly associated with willingness to use cannabis (overall regression: $F(11, 356) = 36.42, p < .001, R^2 = .53$ [Table 4]). Participants with greater U.S. national identification were less willing to use cannabis in the future compared to those with lower U.S. national identification. Greater favorable perceptions of a typical cannabis user (i.e., prototype) was associated with more willingness to use cannabis in the future compared to lower favorable perceptions of a typical cannabis user (i.e., prototype). Female participants, participants who spoke mostly Spanish at home, participants who consumed cannabis in the past week, participants who typically used cannabis with alcohol and other substances, and those from the online web panel (i.e., Prolific) reported higher willingness to use cannabis in the future.

Discussion

The current study examined how ethnic/racial and national identification were associated with perceptions of a typical cannabis user and willingness to use cannabis in the future among Mexican American young adults. Contrary to hypotheses, findings indicated that participants who reported greater ethnic/racial identification were more likely to report favorable perceptions of a typical cannabis user; no relationship was found with willingness to use in future. Supporting previous findings, participants who reported more favorable perceptions of a typical cannabis user also reported higher willingness to use cannabis in the future. Finally, participants who reported greater U.S. national identification were less likely to report willingness to use cannabis in the future.

First, analyses revealed that a stronger ethnic/racial identification was associated with more favorable perceptions of the typical cannabis user. A possible explanation for this finding may be related to the evolving cannabis legal landscape across the U.S. and Mexico, where participants were either born and/or currently live. In particular, increased cannabis legalization and support in both countries have led to an increase of positive perceptions about cannabis use in general and about those who use it (Heinze & Armas-Castaneda, 2015; Felson et al, 2018). Most of the participants (94.9%) in the current study who reported high ethnic identification scores (defined as those at and above the median score) were born in the U.S. between the years of 1997 and 2005, a time that entailed the country's first cannabis legalizations. Most participants also resided in the state of California (~75%), where cannabis use is legal both medicinally and recreationally. In the U.S., the media's frequent framing of cannabis as medicinal has been associated with increased positive perceptions of this substance among the public. Felson and colleagues' (2018) found that there have been increases in public support for cannabis legalization and in the amount of coverage of cannabis as palliative care. Additionally, the researchers found that disapproving attitudes decreased (~38%) from 2002-2014 as the U.S. public associated cannabis use as a less problematic health behavior (Felson et al., 2018). Mexico has also implemented changes to cannabis policy, making adult-use cannabis medically legal in 2017 and recreationally legal nationwide in 2021. Along with policy advancements, there has also been a substantial increase in cannabis use among the public in Mexico. Greater public support for cannabis may have led to increased positive perceptions of the typical user in both the U.S. and Mexico. Another possible explanation for the finding that higher ethnic/racial identity is associated with increase positive perceptions of typical users stems from the characteristics of a typical cannabis user and the context of the scenario. Cannabis use in young age is usually a social leisure activity and can occur alongside identity formation (Duerden et al., 2009; Gould et al., 2019). More specifically, use of cannabis is classified as a deviant leisure activity as it is an enjoyable practice and entails risk taking, possibility of breaking laws, and harming oneself and/or to society (Williams, 2016). A deviant leisure activity, such as cannabis consumption, is a space for young adults to experiment and play with their identities (Wearing et al., 2013). Lavie-Ajayi and colleagues (2022) conducted a study to understand the role that cannabis consumption plays in the identity formation among emerging young adults by using collective memory work. The researchers found several themes that were similar among participant's stories and collective analysis, including that cannabis is cool and dangerous, smoking for the first time is a rite of passage, and that use allows for exploration and identity formation during adolescence and into early adulthood. Cannabis use allows an individual to aspire to a certain social status (e.g., cool, popular) and abstain risk of social abjection. According to social identity theory, individuals aim to belong to social groups that are seen as superior, strive to climb the social ladder, and distance themselves from lower social status groups, especially among youth from ethnic/racial minority groups as they face more social challenges than their majority race counterparts (Bellmore et al., 2012; Tajfel, 1982). It is possible that participants with a high level of ethnic/racial identification may perceive themselves as being excluded from mainstream U.S. society

and be more likely to adopt and report positive perceptions and engage in cannabis use to uphold social status.

Analyses also indicated that participants who reported more favorable perceptions of a typical cannabis user were more willing to consume cannabis in the future. This finding is in line with previous research which has demonstrated similar findings among African American/Black youth who smoke tobacco (Gerrard et al., 2005). Gerrard and colleagues (2005) found that positive perceptions of a prototypical tobacco smoker were associated with an increased willingness to smoke and actual cigarette smoking. Similarly, in another study, Lewis et al. (2021) found that young adults who reported more favorable perceptions of young adults who consume cannabis at baseline were more willing to use cannabis four months later. Given that the current study's participants all have experienced cannabis use, it is possible that their history of having previously tried cannabis could have influenced perceptions resulting in more favorable opinions about the typical cannabis user and in turn, greater willingness to consume cannabis. Another factor that may impact willingness to use is increased exposure and experiences of stress. According to a study conducted by Gerrard et al. (1996), early stressful experiences lead to more favorable risk cognitions and increased likelihood of risk behaviors. Ethnic/racial minority status, such as being Mexican American, has been linked to psychosocial stressors that are not typically experienced by those from the majority ethnic/racial group (in the U.S., Non Latinx Whites; Rogler et al., 1991). Latinx in the U.S. also are more likely to have lower socioeconomic status (U.S. Census Bureau, 2003), face discrimination (Finch et al., 2000), experience cultural and language barriers (Ruiz, 1985), and are less likely to have health insurance (Health and Human Services, 2003). The current study did not measure experiences of stress and future studies may need to evaluate stress experiences in the context of perceptions and related use of cannabis.

Finally, analyses revealed an association of high U.S. national identification and less willingness to use cannabis in the future. This finding may be related to the construct of national identity and its association with political affiliation and/or ideology. As noted previously, national identity is a process that works at the individual and social level and entails characteristics, values, and behaviors that are central to the typical U.S. American. Previous research has linked an individual political ideology in the U.S. to cannabis consumption. Specifically, those who hold more liberal political affiliations tend to hold more favorable views toward cannabis legalization, while those whose political affiliations are more conservative more generally oppose legalization potentially due to their beliefs around authority and morality (Dias, 2017; Pew Research Center, 2018). Another reason for this finding may be related to religious affiliation. Previous research indicates that individuals who report stronger religious affiliations are more likely to oppose cannabis legalization (Collingwood et al., 2018; Ellis et al., 2019). Spetz and colleagues (2019) found that U.S. states that have resisted cannabis legalization tend toward stronger religious values (e.g., Evangelical Protestantism) and have residents that are more likely to be affiliated with conservative political parties, while states who have legalized cannabis have lower rates of political conservatism (Burdette et al., 2018; Schmidt, 1995). According to Kurth's (2007) review of religion and U.S. national identity, religion plays a central role in the formation of national identification in the U.S. It is possible that those who reported greater (or stronger) U.S. national identification

may also be more likely to have more conservative political affiliations and/or religious beliefs. As of 2022, 43% of Latinx adults identify as Catholic (Pew Research Center, 2023). It is possible that decreased willingness among higher nationally identifying Mexican American youth is due to more conservative views on cannabis use in general, which may be influenced by political ideology and/or religious affiliation. Unfortunately, the current study did not ask for participant political affiliation or religious affiliation. Future studies can address this issue by including these questions in surveys.

Limitations

The current study had several limitations. First, the data are cross-sectional and therefore the findings are not causal. Future longitudinal research is needed to examine how ethnic and national identity in youth may or may not predict cannabis use in future adulthood. Second, the sample was predominately female, and many participants were recruited in the state of California (SONA panel 60%). Participants from the Prolific panel were not asked what state they lived in, which may have allowed assessment of whether state policies about recreational and/or medicinal cannabis impacted perceptions, willingness, and use. This limits generalizability of findings to the general Mexican American young adult population in the United States. Future research should attempt to recruit participants from a more diverse sample in states with and without legalized adult-use cannabis to explore differences and similarities in cannabis use and perceptions.

Future Directions and Conclusion

The current findings are the first to the author's knowledge to expand on the influence of ethnic/racial and U.S. national identification, an aspect of acculturation, on perceptions of cannabis prototypes (about the typical user) and willingness to use cannabis (constructs which are guided by the PWM). Future research studies should incorporate all aspects of acculturation (i.e., practices, values, and identification) of the heritage and mainstream culture rather than examining a single acculturative domain (e.g., identification) as the current study did. In addition, future research should include other variables related to stress, including those linked to acculturation (e.g., perceptions and experiences of discrimination, anxiety, depression, alienation) and protective factors that may impact coping and in turn, cannabis use. More research is needed to understand which acculturative factors, at what degree and frequency, are promotive or protective towards cannabis use, while considering important factors relevant to the specific group being studied (e.g., gender, generational status, time spent in the U.S., legal status of the drug in that state and/or country, documented or undocumented status, acculturative stress). Additionally, future research should also test the full PWM model using a longitudinal study design to further understand whether the various components of acculturation link to intention and/or willingness to use cannabis and actual use, and which mediators might influence associations between these variables. Utilizing structural equation modeling to test the full model would enable the ability to examine latent variables and direct paths to intentions and willingness. It is important that future work aim to detangle the mechanisms involved in the relationship between acculturation and substance use (i.e., cannabis) in order to understand whether there are acculturation-related factors that are protective against or risky for cannabis use.

Overall, the current investigation is first to our knowledge to incorporate a bidimensional model of acculturative identification (i.e., ethnic/racial and U.S. national)

for cannabis use. The study's findings highlight the association of acculturation on perceptions of cannabis users and willingness to use cannabis in the future among Mexican American young adults.

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Table 1
Identification Items

U.S. National & Ethnic/Racial Identification Items	
National In-Group Identification (Lyons et al., 2010)	Multigroup Ethnic Identity Measure – Revised (Phinney & Ong, 2007)
1. I see myself as an American.	I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
2. Being an American is central to my sense of who I am.	I have a strong sense of belonging to my own ethnic group.
3. Overall, being an American has very little to do with how I feel about myself.	I understand pretty well what my ethnic group membership means to me.
4. Being an American is an important reflection of who I am.	I have often done things that will help me understand my ethnic background better.
5. In general, being an American is an important part of my self-image.	I have often talked to other people in order to learn more about my ethnic group.
6. I value being an American.	I feel a strong attachment towards my own ethnic group.
7. I feel proud to be an American.	
8. Being an American is unimportant to my sense of what kind of person I am.	
9. I feel strong ties to other Americans.	

Table 2
Sample Demographic Characteristics (N = 397)

Variable	Overall	SONA		Prolific	
	(N = 397)	Female n = 214	Male n = 24	Female n = 93	Male n = 66
Age, <i>M (SD)</i>	21.37 (1.93)	20.57 (1.40)	20.88 (1.48)	22.75 (2.08)	22.18 (1.95)
Sexual Orientation					
Heterosexual / Straight, n (%)	288 (74.4%)	169 (80.9%)	21 (87.5%)	49 (55.7%)	49 (74.2%)
LGBTQIA+, n (%)	99 (25.6%)	40 (19.1%)	3 (12.5%)	39 (44.3%)	17 (25.8%)
Income					
< \$25K, n (%)	148 (37.3%)	87 (45.8%)	12 (50.0%)	28 (30.4%)	21 (31.8%)
\$26K - \$75K, n (%)	146 (36.8%)	71 (37.4%)	7 (29.2%)	40 (43.5%)	28 (42.4%)
\$76K >, n (%)	78 (19.7%)	32 (14.9%)	5 (20.8%)	24 (25.8%)	17 (25.7%)
Spanish spoken at home, n (%)	159 (40.1%)	76 (35.5%)	10 (41.7%)	46 (49.5%)	27 (40.9%)
Immigrant generation status					
First Generation, n (%)	26 (6.5%)	20 (9.6%)	3 (12.5%)	2 (2.2%)	1 (1.6%)
Second Generation, n (%)	269 (67.8%)	154 (74.0%)	18 (75.0%)	60 (64.5%)	37 (58.7%)
Third Generation, n (%)	93 (23.4%)	34 (16.3%)	3 (12.5%)	31 (33.3%)	25 (39.7%)
Past use alcohol/other drugs, n (%)	79 (20.8%)	41 (20.2%)	3 (13.0%)	22 (24.7%)	13 (20.0%)
Used cannabis in past week, n (%)	138 (35.4%)	78 (37.7%)	7 (29.2%)	30 (32.3%)	23 (34.8%)
Ethnic Identification, <i>M (SD)</i>	3.72 (0.72)	3.70 (0.75)	3.73 (0.61)	3.81 (0.65)	3.65 (0.76)
National Identification, <i>M (SD)</i>	3.90 (1.09)	3.85 (1.03)	3.86 (0.81)	3.65 (1.08)	4.41 (1.25)
Prototype Favorability, <i>M (SD)</i>	4.09 (0.64)	3.95 (0.59)	4.06 (0.63)	4.27 (0.64)	4.29 (0.72)
Prototype Similarity, <i>M (SD)</i>	3.24 (1.21)	3.73 (0.96)	3.96 (0.75)	2.43 (0.91)	2.52 (0.93)
Willingness, <i>M (SD)</i>	2.50 (1.21)	1.94 (0.66)	1.86 (0.67)	3.21 (1.40)	3.53 (1.24)

Note: M = Mean; SD = Standard Deviation; LGBTQIA+ = Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, Asexual, and +. Past week cannabis use includes today, yesterday, and past week; reference is the past 1-4 weeks. Bolded values denote significant group differences by row within each online sample (Prolific or SONA) by gender (Female or Male) per independent sample t-test or chi-square analyses, $p < .05$

Table 3
Correlations for Study Variables (N = 397)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Ethnic Identification	-	-	0.14**	0.06	0.01	0.04	-0.03	-0.04	0.02	0.03	0.08	0.06	0.15**	-	0.02
2. National Identification		-	0.03	0.02	-0.07	-	0.18**	0.16**	-0.01	-0.04	-	-0.00	-0.11*	0.15**	0.05
3. Prototype Favorability			-	-	0.39**	-0.12*	-	0.09	0.22**	0.02	0.02	-0.09	-0.06	0.06	0.24**
4. Prototype Similarity				-	0.11*	-	0.14**	-0.09	-0.02	-0.05	0.09	-0.03	0.08	-0.11*	-
5. Willingness					-	-	-	0.18**	0.34**	0.15**	-	-0.03	-0.06	0.14**	0.57**
6. Gender						-	-0.04	-0.01	0.02	0.04	0.04	0.00	0.07	-0.10*	-0.37
7. Sexual Orientation							-	-0.02	-0.11*	-0.00	-	0.03	0.02	-0.06	-
8. Language								-	0.16**	0.01	-	-0.06	-0.12*	0.18**	0.10
9. Past Week Use									-	0.05	0.08	-0.08	-0.07	0.04	-0.04
10. AOD										-	0.05	-0.05	0.14**	-0.11*	0.04
11. Low Income											-	-	0.09	-0.13*	-
12. Moderate Income												-	0.05	-0.08	0.07
13. Second Generation													-	-	-0.13*
14. Third Generation														-	0.23**
15. Prolific or SONA															-

Note. AOD = Alcohol and Other Substances; SONA = Student Research Participation. Past week cannabis use includes today, yesterday, and past week; reference is the past 1-4 weeks. * $p < .05$. ** $p < .01$.

Table 4

Regression Analyses of Ethnic and National Identification on Prototype Perceptions and Willingness to Use Cannabis (N = 397)

Variable	Prototype Favorability			Prototype Similarity			Willingness		
	β (SE)	<i>p</i>	95% CI	β (SE)	<i>p</i>	95% CI	β (SE)	<i>p</i>	95% CI
Ethnic Identity	0.15 (0.04)	<.001	[0.061, 0.231]	0.11 (0.07)	0.098	[-0.021, 0.249]	-0.08 (0.06)	0.191	[-0.203, 0.041]
National Identity	0.03 (0.03)	0.367	[-0.031, 0.084]	0.03 (0.05)	0.505	[-0.060, 0.122]	-0.15 (0.04)	<.001	[-0.231, -0.067]
Prototype Favorability							0.32 (0.07)	<.001	[0.172, 0.463]
Prototype Similarity							0.08 (0.05)	0.121	[-0.020, 0.169]
Gender	-0.07 (0.08)	0.393	[2.980, 3.858]	-0.13 (0.12)	0.306	[-0.374, 0.118]	-0.22 (0.11)	0.050	[-0.447, 0.000]
Sexual Orientation	0.16 (0.07)	0.037	[-0.300, -0.009]	0.02 (0.12)	0.894	[-0.210, 0.241]			
Language							0.24 (0.09)	0.011	[0.057, 0.425]
Past Week Use	0.30 (0.06)	<.001	[0.169, 0.422]				0.74 (0.10)	<.001	[0.550, 0.925]
Alcohol & Other Use							0.32 (0.11)	.003	[0.109, 0.535]
Participant Type	0.25 (0.07)	<.001	[0.115, 0.387]	-1.32 (0.11)	<.001	[-1.533, -1.097]	1.34 (0.12)	<.001	[1.106, 1.575]
Second Generation				0.20 (0.20)	0.311	[-0.188, 0.587]	0.32 (0.18)	0.077	[-0.035, 0.671]
Third Generation				0.26 (0.22)	0.233	[-0.168, 0.688]	0.255 (0.20)	0.201	[-0.255, 0.176]

Note. β = estimate; SE = standard error; CI = confidence interval. Past week cannabis use includes today, yesterday, and past week; reference is the past 1-4 weeks. Bolded values denote a significant p-value, $p < .05$.

Figure 1

Theoretical Model of Ethnic/Racial and U.S. National Identification on Prototype Perceptions and Willingness to Use Cannabis

