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Coping with Acculturative Stress:

MDMA Usage among Asian American Young Adults in the Electronic Dance Music Scene

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Abstract

The intersection of Asian American identity and illicit substance use is greatly understudied in psychological literature, especially with matters of mental health and drug use being stigmatized by Asian cultural norms. However, with an increasingly alarming number of fatal drug overdoses by Asian Americans at electronic dance music (EDM) events, attention must be drawn to the needs of this unique population. The present study characterizes this community by drawing from data of 1,290 Asian American young adults who participate in the EDM scene. This study also hypothesizes the impact of acculturative stress and feelings of social belonging on MDMA usage patterns. Analysis reveals a population of largely East and Southeast Asian, 2nd generation, college-educated young adults with strikingly high usage rates of MDMA, an illicit drug linked to the EDM scene. Multiple regression models were created that could predict MDMA use through various measures related to acculturative stress and social belonging. Findings revealed the significant impact of acculturation, acculturative stress, mental health, peer relationships, and desires for social belonging on this population's MDMA usage patterns, providing an important platform from which future research may launch much-needed additional studies of Asian American young adults and illicit drug use.

Key words: Asian American, youth, illicit substance use, MDMA, electronic dance music

Coping with Acculturative Stress: MDMA Usage among Asian American Young Adults in the
Electronic Dance Music Scene

The study of illicit drug usage is difficult due to the underground, criminalized nature of illegal substance use. Unlike alcohol, marijuana, and tobacco, whose usage patterns are more visible and commonly examined in psychological literature, “hard” drugs like amphetamines, hallucinogens, cocaine, opiates, and inhalants too often remain beyond the reach of academic research.

Illicit drug use is even more hidden within the Asian American population, which comprises 5.8% of the U.S. population and is the fastest-growing racial group in the country (Pew Research Center, 2012). A majority of this population came about when the Immigration Act of 1965 catalyzed the immigration of educated, skilled technical workers from East and South Asia, and during the late 1970’s and 1980’s when international wars caused widespread resettlement of Southeast Asian refugees in the U.S. As a result, many Asian American young adults today identify as 1.5 or 2nd generation immigrants (e.g., moved to the U.S. before age 12 or are the child of immigrants, respectively).

Research on Asian American youth has grown in the past decade, but the scope and depth of study on this group remains far less than that of White, Black, and Latino youth – especially in analyses of substance use (Zhou & Lee, 2004; Maira, 2002). In 2015, the Substance Abuse and Mental Health Services Administration (SAMHSA) administered a National Household Survey on Drug Abuse and found that Asian Americans generally have the lowest rates of illicit drug use among all groups. However, it also discovered that Asian Americans aged 18-25 years old have a higher rate of lifetime hallucinogen use than Blacks/African Americans and Native Hawaiian or Pacific Islanders, and that Asian Americans have tried and used drugs at a significantly higher

rate than older Asian Americans. Many academic studies, especially those drawing from local research, further emphasize the increasing rates and significance of substance use in Asian American communities (Harachi, Catalano, Kim, & Choi, 2001; Ja & Aoki, 1993; Jang, 1996; Nemoto et al., 1999; O'Hare & Tran, 1998; Zane & Huh-Kim, 1994).

Asian American young adults share a unique challenge living in the U.S. with social identities straddling a traditional Asian heritage and a westernized American environment. Yet with Asian cultural norms stigmatizing taboo subjects like mental health and drug use, issues of substance abuse are effectively invisible within the community. The bicultural experience of being Asian American is one of intricate cultural strife, psychological distress, and a desire for social belonging (Dong, Gundlach, & Phillips, 2006). With eighteen years of age being the median age of initiation into illicit substances, the interaction between identity development and mental health in Asian American young adults becomes ever more salient (Hunt et al., 2005).

A relevant phenomenon is the rise of the electronic dance music (EDM) scene and its strong association with illicit substance usage (Hunt et al., 2005). In the mid-to-late 2000's, psychological literature analyzed EDM and drug use primarily within the context of nightclubs and underground warehouse dance parties, known colloquially as "raves" (Hunt et al., 2005). At these events, it is very common for attendees to consume illicit substances like MDMA (commonly known as "ecstasy" and "molly") to enhance their sensory experience; ecstasy is sometimes referred to as the "club drug" or "love drug" for its heightening of energy, pleasure, and empathy levels. While this scene prevails, the setting of EDM events has shifted in the past decade to grander, more commercialized versions of raves, which often take place through highly attended multi-day music festivals such as the popular Electric Daisy Carnival and through concert-like shows where a select few artists will perform in a single night.

Notably, the EDM scene has witnessed a great demographic change in the past decade, with Asian Americans becoming an exponentially increasing presence. Local reports in 1998 and 2000 approximated that about 30% of EDM event attendees were Asian American (Mills, 1998; Nishioka, 2000). A more recent field study found events where Asian Americans comprised the majority (Hunt, Moloney, & Evans, 2010). The intersection between Asian American identity and illicit drug use is greatly overlooked; thus, the substance-heavy EDM scene is a suitable context in which to study Asian American young adults and their substance use patterns.

The significance of illicit substance use among Asian American young adults is further exemplified with several recent deaths in the EDM scene. In August 2016, three Asian American young adults died during the Hard Summer Music Festival in Southern California (Bloom, Pascucci, & Kuzj, 2016). The news follows trends of previous years, with similar fatal incidents increasing year by year – all being attributed to drug overdose and in particular, MDMA usage (Lin, 2016). Such an escalation of substance-related deaths evidences the psychological and societal importance of analyzing this population's drug use patterns. The present study thus aims to examine MDMA usage among Asian American young adults in the EDM scene, and the findings will provide insight into a critically understudied field.

Bicultural Identity

A vital component of the Asian American young adult experience is the culturally specific challenge that comes with balancing one's dual identity of being both Asian and American. Researchers who study the impact of immigration on substance use often examine the role played by acculturation, a minority group's adoption of a mainstream "host" society's cultural patterns. Many researchers rely on Assimilation Theory, developed by Milton Gordon in 1964, which assumes that acculturation is a linear, unidirectional process from lesser to greater

acculturation. However, as more minority youth develop identities that align with neither their cultural background nor host society, critics point out Assimilation Theory's disregard of individual agency in constructing cultural identity, as well as the way the environment may shape development (LaFromboise, Coleman, & Gerton, 1993).

A more complex approach to acculturation is the Segmented Assimilation Theory, which accounts for variances in how children and parents learn (or do not learn) English and American customs, as well as how children and parents insert (or do not insert) themselves into the ethnic community (Portes & Zhou, 1993). This theory acknowledges the diverse potential outcomes of an immigrant's adaptation to mainstream American society, including acculturation patterns that are less "successful" in achieving mainstream American status. Immigrants and immigrant children who are less "successful" according to this model follow a path known as "dissonant" or "downward" assimilation; for youth, this can mean a decision to join a gang or engage in criminal activity such as illicit substance use. Portes and Zhou (1993) posit that this alternate form of acculturation is a way to navigate the race- and class-based societal barriers that inhibit some minority groups from obtaining upward socioeconomic mobility. Asian Americans, on the other hand, are often seen as minorities that do not fall into this category; instead, they follow the path of "selective assimilation" and leverage the cultural and socioeconomic resources of their ethnic background to become successful. However, this notion dangerously contributes to the Model Minority Myth, the widespread misconception that Asian Americans are generally well-off because of stereotypes like having inherently superior work ethics. It is important to acknowledge the diversity within the Asian American community, and that its members are more than just the educated, wealthy East Asian stereotype they are often depicted as.

The “selective assimilation” component of the Segmented Assimilation Theory does, however, advance broader ideas of biculturalism. Whereas some immigrant children may fully assimilate into the host society or not assimilate at all, others adopt American ways while simultaneously remaining rooted in their ethnic or racial community. Such participation in two different cultures allows for an “alternation model” of biculturalism, where individuals shift between their two cultural identities to adapt to a given situation (LaFromboise, Coleman, & Gerton, 1993). A second possible manifestation of biculturalism is the “fusion model”, in which bicultural individuals adopt a “fused” or emergent third culture by combining their two cultures; according to Phinney and Devich-Navarro (1997), they then behave biculturally in all situations. Such a fused Asian American identity exists because being Asian and being American are not mutually exclusive; the creation of a third cultural identity allows individuals to be both at once. These two models of biculturalism are significant to the Asian American young adult population because biculturalism is a form of adaptation to life in the U.S. It is then important to examine the effects that biculturalism may have on this population’s patterns of substance use.

Acculturative Stress

Regardless of how Asian Americans choose to navigate their bicultural identities, it is inevitable that in their lifetime they will experience some kind of acculturative stress, a term describing the negative psychological impact of intercultural contact or the cultural adaptation process (Berry, 2006). In a mainstream American society where Western values are prioritized, it can be psychologically taxing to meet expectations of both the “host” society and one’s Asian background. This acculturation-induced stress may prompt illicit substance use via two sequential mechanisms: the cultural values paradigm and intergenerational conflict.

Cultural values paradigm. Bicultural Asian Americans may find it difficult to navigate the cultural values paradigm, the oppositional dichotomy in value systems that their two cultures hold. While there are many shared ideals across Asian and American cultures, the ones that differ are enough to cause significant psychological discord. For instance, Asian American immigrants and immigrant children are often raised in households that accentuate traditional “Asian” values, which are founded in Confucian and Eastern ideals such as filial piety, collectivism, and suppressive emotional regulation (Kim, Atkinson & Yang, 1999). As they become immersed in mainstream “American” society, however, these values collide with more Western ideals like independence, individualism, and self-expression. For Asian American adolescents and young adults struggling to define themselves and their sociocultural identity, the clash of these incongruent value systems generate a source of acculturative stress. Some subsequently turn to substances as a coping mechanism (Berry, Kim, Minde, & Mok, 1987; Bhattacharya, 2002; Bhattacharya & Schoppelrey, 2004). For example, one field study found several respondents describing their substance use as a direct result of their Asian American experience of feeling torn between or “in-between” traditional Asian and American cultures (Moloney, Hunt, & Evans, 2008). As conflicting pressures fester, they cause tangible harm to each bicultural individual’s psychological development. Moreover, such strife can tangibly manifest in the form of intergenerational conflict.

Intergenerational conflict. Parental-child divides exist across cultures, but the cultural values paradigm puts Asian American youth and young adults at particular risk for intergenerational conflict. As immigrant children mature and develop under influences such as that of their non-Asian peers, mainstream U.S. media, and other westernized institutions, they acculturate into mainstream American culture more rapidly than their first-generation immigrant

parents. This discrepancy in acculturation levels becomes a “culture clash”, in which the cultural values paradigm creates a psychological rift between the first and second generations (Portes & Rumbaut, 2001; Unger et al., 2004). Many Asian Americans blame this intergenerational divide and the associated stress for their resulting drug abuse habits and distancing from parents. For example, one young Chinese American woman explained that the pressure from her parents to excel academically and appear as an “honorable daughter” was unwelcomed and may have contributed to her drug consumption (Moloney, Hunt, & Evans, 2008). She felt burdened with the acculturative stress of parents who did not share her values, and the conflict pushed them apart. A close, supportive relationship with parents is a protective factor against drug usage – bonds with family are inversely related to use of hard drugs (Ellickson, 1999). Thus, by acculturating and deviating from the protective nature of their parents’ culture, Asian American young adults increase their risk of substance abuse (Rodriguez, Adrados, & De La Rosa, 1993).

Asian American young adults are prone to drug use due to their unique struggles with acculturative stress, but preventing their development of substance abuse disorders is complicated by the stigmatization of mental health in traditional Asian cultures. Many Asian societies are founded upon values of collectivism, which prioritizes group harmony and the suppression of individual emotionality. This warrants a silencing of mental health discourse. As a result, Asian Americans are the most under-treated racial group in the country and have the lowest help-seeking rates for issues of mental health, including substance abuse (SAMHSA, 2015). The aforementioned Chinese American woman described Chinese culture as “repressed” and inhibiting of emotional expression, and this may have pushed her to cope using drugs instead of seeking help (Moloney, Hunt, & Evans, 2008). Another Asian American young adult, a Filipino man, explicitly admitted to using drugs as a response to his depression: “Drugs are just

mechanisms to deal with, you know, whatever pain... you go through,” also noting the particular stigmatization of mental health within Asian American communities (Moloney, Hunt, & Evans, 2008). This broader cultural issue of mental health stigma is important to consider when analyzing substance abuse patterns among Asian American young adults, in addition to the acculturative stress of a bicultural identity.

Social Belonging

Acculturative stress is a chief component of the bicultural experience, but such cultural strife is also accompanied by the interpersonal strife of being “in-between” social spaces. As with all youth, the transition into adulthood is marked by a struggle to find and define one’s place in society. However, Asian American young adults face a distinctive challenge of being marginalized not only from mainstream American spaces, but also from traditional Asian spaces. Communities densely populated by Asian Americans, such as neighborhood ethnic enclaves, then provide an “in-between” space for these bicultural individuals to find and create their social identities. As they enculturate into this new “fused” third culture, however, Asian Americans are driven by peer influence and a desire for social belonging to use illicit substances – particularly within the EDM scene, where drugs are a key facet of building relationships and strengthening one’s social identity.

Marginalization and displacement. Asian American immigrant children often cite the crisis of feeling like they belong to neither their ethnic Asian culture nor mainstream (non-Asian) American culture. Racism is a chief mechanism behind this displacement, in which a plethora of stereotypes, prejudiced attitudes, and forms of discrimination marginalize Asian Americans from mainstream American spaces. For example, the aforementioned model minority myth acknowledges the socioeconomic achievement of certain Asian American groups but prevents

them from really being considered “true Americans” due to their constant label as minorities. This ostracization is intertwined with the perception of Asian Americans being “perpetual foreigners” – always seen as an outsider and not meant to engage in insider spaces. In one study, every single Asian American respondent discussed the frustrating marginalization as a non-White in a White dominated society: a common theme of the Asian American immigrant experience (Hunt, 2005; Kibria, 2002).

Yet Asian Americans must also navigate the way they are marginalized from first generation Asian spaces. A Filipina woman reported feelings of anxiety, depression, and loneliness concerning the disconnect from her ethnic culture and identity; emotions that made her feel like an Asian “sell out” and drove her to self-medicate with illicit substances (Moloney, Hunt, & Evans, 2008). She avoided the Filipino community on her college campus due to fears of stigmatization, seeing her drug use as a sign of illegitimacy as a Filipina American. This displacement she felt from her Asian culture closely related to her perceived acculturation as an Asian American. Similarly, when researchers asked, other Asian Americans discussed at length how their drug use stemmed from their experiences with biculturalism (Moloney, Hunt, & Evans, 2008). Being bicultural may mean an ability to participate in two cultures, but not being fully immersed in either can also mean displacement from both. The self-awareness that many Asian Americans have of their marginalization speaks to the impact it has on their social identity formation. It is then no wonder that they are eager to join a community of other Asian Americans where they can feel understood and accepted.

Formation of a fused third culture. Marginalization for Asian Americans may occur universally, but those who have access to ethnic or racial enclaves can find social belonging among other Asian Americans in a “fused” third culture. In communities with a high proportion

of Asian Americans, many bond with their peers through this “in-between” space that is neither wholly Asian nor American (Hunt, 2005). For others, they might find Asian American communities through pan-Asian student groups in college, such as Asian-interest fraternities or sororities, or general clubs such as the Asian American Association (Kibria, 1999). The Filipina woman who struggled with feeling marginalized from her Asian culture ultimately had a “mind-boggling experience” when she discovered in the EDM scene a community of other drug-using Filipino- and Asian-Americans, which she joined in relief as a community she could identify with (Moloney, Hunt, & Evans, 2008). These communities, where Asian Americans come together over shared experiences and struggles, form the basis of an emerging “fused” third culture. The fusion model of biculturalism posits the creation of a new subculture when bicultural individuals reject having to choose between identities for any given situation. Rather, identification with this Asian American third culture allows young adults to keep both identities intact, linked together in a manner that prevents the fragmentation of their bicultural identity and strengthens their sense of social belonging.

Enculturation via drug use. Asian Americans might find relief in this fused third culture but enculturation, the process of acquiring the values and norms of a new culture, may necessitate initiation into or an increase in illicit substance use. Psychological literature suggests that as immigrant youth integrate into their new environment, their substance use behaviors “converge with that of the [U.S.] host culture” and increase (Johnson, VanGeest, & Cho, 2002). In addition, the cultural values paradigm suggests that preference for traditionally Asian values serves as a protective factor against substance use, while adopting values of mainstream American culture is a risk factor for usage (Unger et al., 2004). It may be tempting to then deduce that the more “American” one becomes, the more likely one is to use substances.

However, this idea frames acculturation through the obsolete Assimilation Theory, which assumes a linear transformation from Asian to American. This lens does not take biculturalism into account, in which Asian American drug users may not actually be attempting to assimilate into mainstream America.

Rather, as the presence of Asian Americans grows in the EDM scene, it may be that this group is instead trying to find or build a community of Asian Americans who share not just their taste in music, but their experiences with racism (Moloney, Hunt, & Evans, 2008). For these Asian American young adults, substance use may be an opportunity to navigate the acculturative stress they experience as bicultural immigrants and to find social belonging amongst other Asian Americans who understand. Association with substance-using peers is already well known to increase risk of use among youth (Curran, Stice, & Chassin, 1997; Hahm et al., 2004; Oetting & Beauvais, 1987; Scheier, 2001). However, the additional yearning to join an Asian American community, such as that of the EDM scene, only enhances the facilitating effect of peer usage. A qualitative field study by Hunt (2005) found that Asian American young adults who are initially reluctant to try ecstasy often admit to being convinced by close, trusted friends. They note their feelings of safety and protection when taking ecstasy with these peers, especially with their initiation usually happening in “controlled and safe environment” or as part of joining a college fraternity or sorority. Furthermore, they highlight the physiological effects of ecstasy that help them leave behind their stress, loosen up among peers, and become more comfortable in their social setting (Hunt, 2005).

Enculturating into the Asian American EDM community may augment drug use, and the highly social context in which it is done only reinforces the importance of substances in this fused, emergent third culture. In fact, in the EDM scene in particular, Asian American drug use

is now heavily normalized; when discussing the scene, some research participants declare that Asians and ecstasy go hand-in-hand (Moloney, Hunt, & Evans, 2008). Thus, while enculturation into an Asian American community strengthens one's bicultural identity and sense of social belonging, it also may serve as a driving factor behind illicit drug use and the eventual development of substance abuse disorders.

The Present Study

Psychological literature on Asian American young adults points to the potentially significant effects of acculturative stress and social belonging on illicit drug use, but research in this field is still scarce. The present study predicts that both forces contribute to illicit substance use, but it differs from prior studies in that it examines usage patterns through the contemporary framework of the fusion model of biculturalism. By examining Asian American young adults within the specific context of the MDMA-heavy EDM scene, this research may reveal the emergence of an Asian American subculture centered around EDM and substance use.

Previous studies have been primarily qualitative in nature, gathering insightful responses but from only a limited sample of participants. Thus, this research study thus has two objectives. The first one is to thoroughly characterize the population of interest by sampling a large number of participants and using the data to determine their demographics, cultural identities, substance use behaviors, and participation in the EDM scene. The second objective is to test two hypotheses regarding their MDMA usage:

Hypothesis 1. Higher levels of acculturative stress are linked to greater MDMA use because of the mental health damage caused by the cultural values paradigm and intergenerational conflict.

Hypothesis 2. Stronger feelings of social belonging are related to greater MDMA use because of its key role in enculturation into the Asian American EDM community.

With the emergence of a community that embraces a dual Asian American identity, individuals who share the struggles of biculturalism, acculturation, and marginalization may be brought together. However, the present study must also be careful to acknowledge the great heterogeneity in Asian American young adults. Asian Americans are often lumped into a single category, along with Pacific Islanders, in academic research, which ignores the diversity of ethnicity, class, gender, ability, education, generational status, and other forms of identity within the population. Thus, in addition to examining the variables of interests presented by this study's hypotheses, the present study will also account for the wide range of intersectional Asian American identities that may also shape their patterns of MDMA usage in the EDM scene.

Method

Participants

Individuals qualified for this study only if they were above the age of 18 years old, self-identified as Asian American, and attended at least one EDM event in the past twelve months. Subjects were identified and recruited online via membership in EDM-related social media groups (e.g. Facebook and Reddit) and via public Facebook events for upcoming EDM events. Snowball sampling widened the participant pool as individuals spread the study via word-of-mouth to their personal networks. Subjects were also recruited by the principal investigator on-site, in which the PI approached attendees at EDM events asking for voluntary participation in the study. The study was advertised under the incentive of gaining entry into a raffle upon completion. Raffle prizes included a Day 1 Pass to Beyond Wonderland 2017, a popular annual music festival in Southern California, and fifteen \$20 Amazon gift cards. The study was also

advertised as a way of contributing to scientific understanding of Asian American identity, interpersonal relationships, and mental health mechanisms.

The total number of documented participants was 2,443. However, survey responses from 1,129 participants were deemed invalid for being incomplete or having an excessive amount of skipped questions. Moreover, outlier responses invalidated data from 24 further participants. The total number of participants whose responses were eligible for analysis was thus $N = 1290$.

Aside from the minimum age requirement of 18 years old, participants were not limited by age since the definition of a “young adult” is ambiguous. The age of participants with analyzable data thus ranged from 18 to 39 years old (See Figures 1 and 2). While the spread of ethnicities was wide, the pool was dominated by participants of Chinese, Vietnamese, and Filipino descent (See Figure 3). Gender was balanced between males and females (See Table 1).

Participants also identified their immigrant generational status. A participant is considered a 1st generation immigrant if they were born in another country and moved to the U.S. before age twelve. A participant is considered a 1.5 generation immigrant if they were born abroad and moved to the U.S. at or after age twelve. Participants with at least one parent born abroad are considered 2nd generation, and those whose parent(s) were born in the U.S. are 3rd generation immigrants or beyond. This study’s participant pool predominantly identified as 2nd generation. Participants are also very proficient with the English language; nearly all who indicated their fluency level reported complete English fluency.

Because the majority of participants were too young to have their own established income, socioeconomic status was evaluated by self-reported parental income, revealing a very even spread of income levels. Education levels, on the other hand, were centralized primarily around a college undergraduate degree. The majority of participants currently attend college, and

even more have graduated from college and/or progressed with their education beyond. For a more detailed breakdown of participant demographics, see Table 1.

Procedure

Participants were asked either virtually or in-person to participate in this study. Individuals interested in participating were first asked to review an Informed Consent form, which briefly described the variables of interest in this study (Asian American identity, interpersonal relationships, mental health, involvement in the EDM scene, etc.) as well as particular items that may be sensitive (e.g. family history, social identity, illicit substance usage). The form emphasized the participant's full agency in opting out of the survey without penalty at any point, as well as their ability to skip any questions that may be uncomfortable or triggering. Participants were also reminded of their complete confidentiality in their responses, and of their ability to win a Beyond Wonderland Day 1 Pass or one of fifteen \$20 Amazon gift cards by participating. Contact information of the PI, faculty advisor, and chair of the Pomona College Human Subjects Committee were provided for further questions or concerns. Participants proceeded with the study only after confirming electronically that they understood and agreed to the information provided in the Informed Consent form.

Participation in this study was wholly based on an online questionnaire. The survey was developed via Qualtrics, in which participants self-reported information concerning demographics, family background, social perceptions, substance use history, and EDM event attendance. Several qualitative short-answer questions were also included. The items used in the survey were all drawn from verified scales via database PsycTests (see Materials section) and adapted for the present study.

The survey was initially distributed in the form of a pilot study and revised according to feedback. Questionnaire responses were then gathered over the course of approximately one month, from February 22 to March 19, 2017. Responses remained completely anonymous throughout the entirety of data collection and analysis. The only personally identifying information requested, an email address for the gift card raffle, was collected separately from individuals' survey responses. Participant confidentiality was further ensured by storing the data in a secure network setting, with access restricted only to the principal investigator and faculty advisor. A debrief form was provided to participants immediately upon completion of the survey, containing more details about the study, how the data will be analyzed, and what the findings may be used for. The debrief form provided contact information again of the principal investigator, faculty advisor, and chair of the Pomona College Human Subjects Committee, as well as several web links to help services concerning substance abuse and mental health.

Materials

The questionnaire completed by participants of this study relied primarily on measures drawn from the verified database PsycTests. Also included were general demographic questions and measures of EDM event attendance, for which no verified scales could be found. Items were all based on self-report and optional to answer, excluding the few that determined eligibility. The scales used and adapted for the present study are listed below, in the order found in the survey:

Acculturation, Habits, and Interests Multicultural Scale for Adolescents. The Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHIMSA; Unger, et al., 2002) is a brief, multidimensional acculturation measure for adolescents. It assesses ethnic interaction (e.g. "I am most comfortable being with people from..."), ethnic behaviors (e.g. "The way I do things and the way I think about things are from..."), and cultural heritage (e.g. "My

favorite music is from...”) in relation to the United States and to the country of family origin. The scale contains 8 items, each of which were to be answered with a 4-choice response option (The United States, The country my family is from, Both, or Neither). The scale was adapted for use in this study by eliminating measures of cultural heritage and instead only using four items that measure ethnic interactions and ethnic behavior. The response options were also modified to 3 choices (Asian [country of origin] cultures, Asian American cultures, and Mainstream or Non-Asian American cultures) for the interest of the present study.

Enculturation of Familial and Cultural Values Scale. The Enculturation of Familial and Cultural Values Scale (Choi et al., 2013) aims to assess family socialization beliefs and practices of Korean immigrant parents. It contains 7 items rated on a 5-point Likert scale. The items are preceded with instructions to consider family values and what you want to see in your child when s/he is grown up. Statements include values such as “Support/help siblings when they need help” and “Do things to please parents”, with greater ratings indicating greater agreement with the value. To maintain consistency with the ratings of the other scales in the present study, the scale was adapted to be rated on a 7-point Likert scale. Construct validity of this scale was supported by examinations of various related measures.

Asian American Family Conflicts Scale. The Asian American Family Conflicts Scale (FCS; Lee, Choe, Kim, & Ngo, 2000) is a measure of typical generational family conflicts that result from acculturation differences between parents and late adolescent and young adult children. The scale contains 10 items citing examples of potential family conflicts (e.g. “Your parents tell you what to do with your life, but you want to make your own decisions.”). The FCS-Likelihood subscale rates the items on a 5-point Likert scale, with higher values indicating higher likelihood of the conflict to occur in one’s family. The FCS-Seriousness subscale assesses

how serious a problem each of the 10 conflicts may pose in the family on a 5-point Likert scale, with higher values indicating greater seriousness of the conflict. For the present study, ratings were adapted to a 7-point Likert scale to maintain consistency with other item rating scales. The two subscales were strongly correlated ($r=0.74$) with strong internal reliability coefficients $\alpha_{\text{likelihood}} = .89$ and $\alpha_{\text{seriousness}} = .91$. The FCS subscale validity findings are consistent with literature and research on Asian American families.

Asian Values Scale. The Asian Values Scale (AVS; Kim, Atkinson & Yang, 1999) measures adherence to Asian cultural values based on 36 items, to which respondents rated agreement on a 7-point Likert scale. The 36 items covered 6 factors of Asian values: Conformity to Norms (e.g. “Following familial and social expectations is important”), Family Recognition Through Achievement (e.g. “Occupational failure does not bring shame to the family” [some items were reverse coded]), Emotional Self-Control (e.g. “The ability to control one’s emotions is a sign of strength”), Collectivism (e.g. “One should think about one’s group before oneself”), Humility (e.g. “One should not be boastful”), and Filial Piety (e.g. “Children should not place their parents in retirement homes”), and some items were not categorized into any of the factors (e.g. “One should not inconvenience others”). To avoid overlap of measures in the present study, items that evaluated the last factor of Filial Piety were omitted, as were items that did not fall under one of the first 5 factors. Thus, only 20 items were drawn from the original scale. The AVS was internally consistent, as evidenced with alpha values of 0.81 and 0.82 in two different studies, and also proved to have test-retest reliability with a test-retest coefficient of 0.83. Analysis of AVS also revealed concurrent validity and discriminant validity.

Multidimensional Acculturative Stress Inventory. The Multidimensional Acculturative Stress Inventory (MASI; Rodriguez et al., 2002) is a 25-item measure designed to

assess acculturative stress among United States residents of Mexican origin, especially as it relates to biculturalism. Each of the 36 items describe an event that may cause acculturative stress; if the event was experienced in the past 3 months, participants rated the stressfulness of the event on a 5-point Likert scale, with a higher rating indicating higher stress. The scale measured four factors: Spanish Competency Pressures (e.g. “I feel pressure to learn Spanish”), English Competency Pressures (e.g. “I feel pressure to learn English”), Pressure to Acculturate (e.g. “I don’t feel accepted by Whites”), and Pressure Against Acculturation (e.g. “People look down upon me if I practice American customs”). For the present study, the scale was adapted for use among Asian Americans, such as replacing “Spanish” with “the language from my country of origin” and replacing “Mexican values” with “Asian values”. Furthermore, the 5-point Likert scales were adapted to 7-point scales for consistency. The MASI and its subscales were revealed to be reliable for the entire sample (Cronbach alpha’s ranging from .77 to .93) and demonstrating acceptable test-retest reliabilities for three out of the four subscales.

Attitudes Toward Seeking Professional Psychological Help Scale – Short Form. The Attitudes Toward Seeking Professional Psychological Help Scale – Short Form (Fischer & Farina, 1995) is a 10-item adaptation of Fischer and Turner’s (1970) scale of 29 items that measure attitudes towards seeking professional psychological help. Items were rated on a 4-point Likert scale, with higher ratings indicating more agreement with the item’s statement (e.g. “If I believed I was having a mental breakdown, my first inclination would be to get professional attention.”) The present study adapted this rating scale to a 7-point Likert scale for consistency. The internal consistency (Cronbach’s alpha) of the 10 items was .84 and the correlations between having sought help and the participant’s scale score supported the measure’s validity.

Perceived Acceptance Scale. The Perceived Acceptance Scale (PAS; Brock et al., 1998) was created to assess elements of perceived acceptance specific to relationships with friends and family. 12 items evaluated perceived acceptance by friends across two factors: beliefs regarding trust and support (e.g. “My friends frequently show me that they care”) and beliefs that friendships are hurtful and that friends cannot be trusted (e.g. “I often feel that my friends don’t understand me). 12 items evaluated perceived acceptance by family (e.g. “I confide my inner most secrets to my family”), and 20 items total evaluated perceived acceptance by mother (e.g. “My mother disciplined me too often”) and father (e.g. “My father was always careful not to hurt my feelings”), for a total of 44 items in the scale. Each item was rated on a 5-point Likert scale. The present study adapted the rating scale to a 7-point Likert scale for consistency and included only measures evaluating perceived acceptance by friends and by family for simplification, for a total usage of 24 items. All scores across the four factors and total PAS were internally consistent with alpha coefficients exceeding .80. Discriminant and convergent validity were both also evidenced by the scale.

Perceived Risk of Exclusion Scale. The Perceived Risk of Exclusion Scale (Thau et al., 2005) assesses perceived risk of exclusion from one’s workgroup, with items adapted from the Workplace Ostracism Scale (Ferris et al., 2008) and the UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). This scale contains 7 items on a 5-point Likert scale, with higher ratings indicating higher agreement with statements such as “I sometimes feel as though members of my workgroup might ignore me”. The present study adapts this scale to the context of one’s possible social and racial identity groups (close friends, family, Asian heritage, Asian American culture, Mainstream American [non-Asian] culture) instead of one’s workgroup, and it uses a 7-point Likert scale for consistency with the rest of the survey. The Cronbach’s alpha for

this scale was .92, indicating high internal consistency. Factor analyses found convergent and discriminant validities to be evidence.

Index of Non-White Contact. The Index of Non-White Contact (La Macchia et al., 2016) measures the amount of interpersonal contact and friends that one has with minority racial and ethnic groups. The scale contains 8 items measuring interactions with Blacks/African Americans, Hispanic/Latin Americans, Asian Americans, and Native Americans, each in terms of interpersonal contact and then in terms of friendships. Each item uses a 7-point Likert scale, with higher ratings indicating more contact. Instead of evaluating contact with these four groups, the present study adapts this scale for evaluation of contact with “International Asians”, “Asian Americans”, and “Non-Asian Americans”. Responses to this scale were averaged into a single index, $\alpha = .96$ indicating high internal consistency.

Racial Microaggressions Measure. The Racial Microaggressions Measure (Ong et al., 2013) examines the prevalence of racial microaggressions in the lives of Asian Americans, which serve as subtle measures of racial biases and discrimination. This measure takes the form of a 20-item checklist, where participants indicate if they have or have not experienced that particular microaggression on a given day. The items are grouped into two general categories: Microinsults (e.g. “I was teased for not using Western utensils”) and Microinvalidations (e.g. “I was told I speak good English”). The present study adapts the time reference period used in the original study, from indicating if the microaggression was experienced on a given day, to if the microaggression was experienced in the past twelve months. This serves to align with the rest of the study’s past-twelve-months reference period. The present study also excludes the last item of “Other” incidents, for a total use of 19 items. Inter-rater reliability was confirmed with a Cohen’s k value of .83. Test-retest reliability was confirmed with a week-to-week correlation of .71.

Adolescent Illicit Drug Use, Cigarette Smoking and Alcohol Drinking Behaviour

Questionnaire. The Adolescent Illicit Drug Use, Cigarette Smoking and Alcohol Drinking Behaviour Questionnaire (Madu & Matla, 2003) assesses illicit drug use, cigarette smoking, and alcohol consumption behavior in adolescents. It contains sections for demographic information as well as three multiple-part questions on substance usage utilizing yes/no, open-ended, multiple-choice, and scaled responses. The three multiple-part question focuses on illicit drug usage, cigarette smoking, and alcohol consumption; since only the first is relevant to the present study, the questionnaire was adapted by omitting the latter two questions. The present study also specified that marijuana is not included in questions about illicit drugs, since we are interested in “hard drugs” that do not include marijuana. Key items that were used from this questionnaire include “Have you ever used an illicit drug?”, “Under what circumstances did you normally use the drug in the last three months?”, “How frequently did you use the drug in the past three months”, and “At what age did you start using the drug?”. All of these items are of particular interest to the present study.

Personal Concerns About Drug Use/Misuse. The Personal Concerns About Drug Use/Misuse Scale (Palmer et al., 2012) was created as part of a study examining negative consequences, personal concerns, and/or interest in interventions for drug use in college students. This scale contains 15 items in which students rate their level of personal concern with their drug use/misuse on a 5-point Likert scale. The current study adapts the scale by pulling just two relevant items, “I am concerned with my use/misuse of illicit drugs” and “I could stop using illicit drugs at any point if I wanted to”, and it also adapts the rating scale to a 7-point Likert scale for consistency.

Drug Use Consequences Scale. The Drug Use Consequences Scale (Palmer et al., 2012) was created as part of the same aforementioned study examining negative consequences, personal concerns, and/or interest in interventions for drug use in college students. This scale contains 26 items in which students rated their frequencies experiencing each of 26 different consequences (e.g. “Spent too much money or lost a lot of money”) as a result of using drugs. Participants rated their frequencies on a 10-point ordinal scale (higher ratings being more frequent experiences). For simplification, the present study maintains all 26 items but reduces the 10-point scale to a 3-point scale, in which participants indicate whether they experienced these negative consequences due to illicit drug usage either in their lifetime, the past year, or never.

Illicit Drug Use/Medication Misuse Questionnaire. The Illicit Drug Use/Medication Misuse Questionnaire (Palmer et al., 2012) was created as a part of the same study mentioned in the two previous scales. This questionnaire measured lifetime use of nine different illicit drugs (i.e yes/no) and the number of days used in the past month. A list of six prescription medications was also added to examine abuse of prescribed medication, and included an additional rating of the circumstance under which the medicine was used (e.g. never taken, taken as recommended, taken more than recommended/prescribed, obtained from someone else’s prescription or from someone else, etc) to measure misuse. The present study adapted this questionnaire to align with its twelve-month timeline, asking about frequency of use in the past twelve months rather than the past month. Each drug was also addressed individually in asking about age of initiation and if usage has occurred at an EDM event. Moreover, this questionnaire was duplicated twice to ask about (1) perception of drug usage frequencies among close peers, and (2) perception of drug usage frequencies among general EDM event attendees.

Drug Use Stigmatization Scale. The Drug Use Stigmatization Scale (Palamar, Kiang, & Halkitis, 2011) assesses perceived personal stigmatization of illicit drug usage, in respect to five frequently used drugs: marijuana, powder cocaine, ecstasy, nonmedical use of opioids and amphetamines. The scale includes 7 statements measuring personal stigmatization against usage for each of the 5 drugs individually, rated on a 5-point Likert scale with higher ratings indicating more agreement with the stigmatizing statements (e.g. “Using _____ is morally wrong” or “_____ users should go to prison”). The items were adapted for the present study by collapsing the 7 statements into one single stigmatization-encompassing statement: “People should not use _____” and using a 7-point Likert scale for consistency. Reliability values ranged from .77 to .82 and correlation calculations evidenced the scale’s construct validity.

Exposure to Drug Users Index. The Exposure to Drug Users Index (Palamar, Kiang, & Halkitis, 2011) assesses levels of perceived exposure to illicit drug users, again with respect to the same five drugs addressed in the two previous scales. The scale contains 7 statements evaluating exposure to illicit drug users, such as “I have observed people who use _____ frequently.” Participants could respond in three ways: Yes, No, or I don’t know. Again, the present study collapses the 7 statements into 1 encompassing statement “I have been exposed to people who use _____.” Reliability and validity analyses are the same as that of the previous two measures, being part of the same larger study.

Results

Characterizing the Population

Analyzing the characteristics of this sample reveals the unique nature of the population being studied. While EDM events attract attendees from a vast range of backgrounds, Asian Americans in the EDM scene are diverse while also sharing numerous identities and experiences.

The information collected and analyzed in this study will strengthen societal understanding of Asian American young adults in the EDM scene and serve as a foundation for future investigations into this greatly overlooked population.

Demographics. The EDM scene is known to be dominated by young adults, but the Asian American community involved is centered heavily on the younger end of the spectrum. While ages of participants ranged from 18 to 39, the average age of participants was 21.57 years old, with that of the MDMA-using subpopulation being only slightly higher at 21.7 years. The proportion of the overall sample who reported being 21 years old or younger was 58.5% (See Figure 1).

Participants most commonly identified as being of solely Chinese (23.2%), Vietnamese (18.8%), Filipino (10.3%), or Taiwanese (8.0%) descent. Those identifying with two or more ethnicities composed an additional 23.8% of the sample, most commonly being mixed Chinese-Vietnamese (6.7%), Chinese-Taiwanese (2.4%), or Chinese-Filipino (1.4%). For statistical purposes, participants were then categorized by geographic region. Participants were primarily individuals of East Asian (43.6%) or Southeast Asian (32.8%) background, with only a minority identifying as South Asian (3.8%). The rest who identified as being from two or more of these regions (19.8%) were mainly of mixed East and Southeast Asian descent.

Another key aspect of this population's demographic identity is their immigrant generational status. Nearly four in five participants share the experience of being born in the U.S. as the child of immigrants. Among those who reported their generational status, 14.0% identified as 1st generation immigrants, 3.7% identified as being 1.5 generation, 77.2% identified as 2nd generation, and 4.9% identified as being 3rd generation or beyond. The sample reported a high level of English language proficiency; 96.4% of those who indicated their fluency reported

complete fluency. The population is also highly and uniformly educated. Less than 1% of participants did not or have not yet completed high school, while 67.8% are currently attending college. Those who graduated from college and/or progressed with their education beyond composed 24.9% of respondents (See Table 1). Because the majority of participants were too young to have their own established income, socioeconomic status was evaluated by self-reported parental income. Among the 1191 participants who indicated parental income levels, the spread was overwhelmingly even, with no income bracket spanning more than 16% of the overall sample (See Table 1).

Mental health and substance use. Mental health was an item of concern for participants, with 34.7% reporting history of some mental illness ($n = 447$). Anxiety and depression were particularly prevalent among this population: 19.7% reported history of an anxiety disorder ($n = 254$) and 24.0% reported history of depression ($n = 309$). These numbers increased among the MDMA-using subpopulation, with 35.8% of users reporting history of some mental illness, 20.7% reporting an anxiety disorder, and 25.4% reporting experience with depression (See Table 1).

Substance use stood out as a strongly defining characteristic of this population. Nearly 3 in 4 (74.1%) of participants have tried MDMA, and the age of initiation for MDMA use was low at just 19.49 years of age. Frequency of MDMA use at EDM events was similar across participants: 30.8% reported using MDMA about every 4-6 months, 36% reported using it every 2-3 months, and 17.7% reported using it once a month or more. As measured by the conversion rate of 75mg MDMA per ecstasy pill, the number of pills consumed per episode (portion size) and overall throughout lifetime (pill count) both ranged vastly. However, these statistics are greatly unidirectionally skewed. The average portion size was 0.91 pills, but 82.8% of MDMA

users consume one pill or less per episode. The average pill count was 22.1, but 81.7% of users reported a count of 10 or less (See Table 3).

Ultimately, MDMA users indicate very little concern about their personal drug use. More than half report negative consequences such as doing something embarrassing, feeling guilty or ashamed, or feeling bad physically because of their drug use, but more than half of users also report that they felt more like their authentic selves, felt proud of themselves and their identity, refined their personal identity, built new friendships, strengthened existing friendships, strengthened an existing relationship with a significant other, felt more loving or accepting towards others, felt more loved or accepted by others, felt more able to be independent, free, or individualistic, felt like part of a tight-knit community, felt like challenging the status quo as part of a unique, anti-mainstream culture, enjoyed being physically intimate with another, enjoyed spending time with friends, enjoyed spending time with others they did not previously know, felt energized, happy, or generally more positive, and had a deep personal realization or transformation of self.

Participation in the EDM scene. The study found relatively homogenous levels of involvement in EDM. The average age of initiation into the scene, defined by the age at which they attended their first EDM event, was 19.1 years old. Notably, 89.1% of participants were initiated at or before age of 21 years. The average number of EDM events attended in the past year was 7.73 events, though that number increased to 8.33 among MDMA users. Participants estimated their rate of attendance as most commonly being once every 2-3 months (35.6%), every 4-6 months (22.5%), once a month (21.1%), or more than once a month (10.2%). Only 13.3% attended an event once a year or less. Analysis of only MDMA users produced even higher rates of attendance, with rates most commonly being once every 2-3 months (38.0%),

once a month (23.3%), every 4-6 months (20.8%), or more than once a month (11.6%) (See Table 2).

The survey found strong reports of feeling welcomed by the EDM scene. Motivation for attending was similar among participants: 95.4% cited the music, 89.9% cited the event experience, and 86.4% cited friends. Interestingly, 25.6% of the total pool also admitted to attending EDM events to use illicit drugs ($n = 330$), or 34.5% of the MDMA-using subpopulation. On average, participants estimated that they would stop attending EDM events at 28.4 years of age -- this excludes the several dozen responses claiming “never” or “#ravetothegrave”. Most likely reasons for leaving the scene were feeling too old for the crowd (73.8%), friends no longer attending (57.6%), costs being too high (50.0%), and too much mental/physical toll (44.9%).

Asian American identity. The great majority of the sample identified most strongly with being Asian American (81.4%), as opposed to being Asian international (2.2%) or mainstream American (16.3%). Participants interacted most commonly with other Asian Americans rather than either of the other groups. They share common experiences of microaggressions such as hearing that all Asians look alike or that Asians are really good at math and science: 68.3% and 54.7% reported hearing these in the past month, respectively. Many in the sample also perceived marginalization and acculturative stress stemming from intergenerational or family conflict (See Table 4).

Testing the Two Hypotheses

The present study proposes two hypotheses to identify patterns of MDMA usage among Asian American young adults, particularly concerning usage within the EDM scene. The first hypothesis predicts a positive relationship between measures of acculturative stress and MDMA

usage. The second hypothesis predicts a positive relationship between feelings of social belonging and MDMA usage. Data were organized, cleaned, and analyzed using regression analysis models via IBM's statistical analysis software SPSS Version 24. Regression models controlled for demographic variables of age, gender, ethnicity by region, generational status, and parental income.

Hypothesis 1: MDMA usage increases with acculturative stress. Data analysis utilized bivariate correlations (See Table 5) and multiple linear regression models (See Tables 7-10) as methods of determining relationships between nine measures of acculturative stress (strongest identity affiliation, strength of Asian American identity, level of acculturation, Asian enculturation, belief in Asian values, family conflict, acculturative stress, mental illness history, help-seeking attitudes towards mental health) and each of the four outcome variables that operationalized MDMA usage (age of initiation, frequency of usage, portion size per episode, and lifetime pill count).

Age of initiation into MDMA usage was highly correlated with age ($r = .637, p < 0.001$) but no measures of acculturative stress. The correlation between age of initiation and a history of mental illness was marginally significant ($r = -.063, p = .06, ns$). Frequency of MDMA usage was correlated with an individual's strength of Asian American identity ($r = .065, p < 0.05$) and acculturative stress ($r = -.084, p < 0.05$). MDMA portion size was highly correlated with age ($r = .203, p < 0.001$), Asian American identity ($r = .129, p < 0.001$), and level of acculturation ($r = .119, p < 0.001$). Portion size was also strongly correlated with acculturative stress ($r = -.094, p < 0.01$). MDMA pill count was highly correlated with age ($r = .272, p < 0.001$) and mental illness history ($r = .087, p < 0.01$), in addition to being correlated with family conflict ($r = .068, p <$

0.05). As expected, all the outcome variables were highly correlated except for initiation age with usage frequency and initiation age with portion size (See Table 5).

The hypothesized Acculturative Stress Model did not predict age of MDMA initiation, as indicated by a non-significant model. However, the Acculturative Stress Model predicted frequency of MDMA usage, $X^2(9, n = 771) = 1.376, p < 0.05$. A general measure of acculturative stress significantly predicted a negative relationship with frequency of use ($\beta = -0.181, p < 0.001$). No other measures of acculturative stress were statistically significant.

The Acculturative Stress Model also predicted MDMA portion size, $X^2(9, n = 773) = 0.352, p < 0.001$. Portion size was significantly predicted to have a positive relationship with acculturation level ($\beta = 0.338, p < 0.05$), a negative relationship with acculturative stress ($\beta = -0.060, p < 0.05$), and a positive relationship with mental illness ($\beta = 0.102, p < 0.05$).

The model also predicted lifetime MDMA pill count, $X^2(9, n = 673) = 100.62, p < 0.001$. Pill count was significantly predicted to have a positive relationship with strongest identity affiliation ($\beta = 1.497, p < 0.01$), a negative relationship with acculturation level ($\beta = -0.1458, p < 0.05$), a positive relationship with family conflict ($\beta = 0.139, p < 0.05$), and a positive relationship with mental illness ($\beta = 0.419, p < 0.05$).

Hypothesis 2: MDMA usage increases with feelings of social belonging. Bivariate correlations (See Table 6) and multiple linear regression models (See Tables 7-10) were also used to determine relationships between eleven measures of social belonging (perceived social acceptance, perceived risk of social exclusion, contact with international Asians, contact with Asian Americans, contact with mainstream Americans, experience with microaggressions, feeling of belonging with friends in the EDM scene, feeling of belonging with the general public in the EDM scene, perception of MDMA use in the EDM scene by friends, perception of

MDMA use in the EDM scene by the general public, estimated peer rate of EDM event attendance) and each of the same four outcome variables from.

Age of initiation into MDMA usage was negatively correlated with contact with mainstream Americans ($r = -.071$, $p < 0.05$), feelings of belonging with the general public in EDM ($r = -.067$, $p < 0.05$), and perceived frequency of MDMA usage by friends ($r = -.070$, $p < 0.05$). Frequency of MDMA usage was negatively correlated with perceived risk of social exclusion ($r = -.078$, $p < 0.05$) and extremely positively correlated with Asian American contact ($r = .122$, $p < 0.001$), feelings of belonging with friends in EDM ($r = .149$, $p < 0.001$), feelings of belonging with the general public in EDM ($r = .174$, $p < 0.001$), EDM event attendance rate of friends ($r = .359$, $p < 0.001$), perceived frequency of MDMA usage in EDM by friends ($r = .453$, $p < 0.001$), and perceived frequency of MDMA usage in EDM by the general public ($r = .234$, $p < 0.001$). MDMA portion size per episode of use was highly correlated negatively with contact with Asian Americans ($r = -.128$, $p < 0.001$), experience with microaggressions ($r = -.068$, $p < 0.05$), and positively correlated highly with contact with mainstream Americans ($r = .133$, $p < 0.001$) and feelings of belonging with the general public in EDM ($r = .089$, $p < 0.01$). Lastly, lifetime MDMA pill count is strongly correlated positively with contact with international Asians ($r = .088$, $p < 0.01$), perceived MDMA usage in EDM by friends ($r = .149$, $p < 0.001$), and perceived MDMA usage in EDM by the general public ($r = .077$, $p < 0.05$) (See Table 6).

The proposed Social Belonging Model strongly predicted age of MDMA initiation, $X^2(11, n = 732) = 5.117$, $p < 0.001$. Age of initiation was significantly predicted to be positively related to contact with international Asians ($\beta = 0.166$, $p < 0.05$), negatively related to contact with mainstream Americans ($\beta = -0.142$, $p < 0.05$), negatively related to experience with microaggressions ($\beta = -0.740$, $p < 0.05$), negatively related to feeling of belonging in EDM with

general others ($\beta = -0.247, p < 0.05$), and most predicted to be positively related to feeling of belonging in EDM with friends ($\beta = 0.510, p < 0.001$).

The Social Belonging Model predicted frequency of MDMA use, $X^2 (11, n = 764) = 0.997, p < 0.001$. Usage frequency was significantly predicted to have a positive relationship with feeling of belonging in EDM with general others ($\beta = 0.092, p < 0.05$), and positive relationship with perceived MDMA use frequency by friends ($\beta = 0.400, p < 0.001$) and a positive relationship with estimated peer rate of attendance ($\beta = 0.231, p < 0.001$).

MDMA portion size, was also predicted by the Social Belonging Model $X^2 (11, n = 766) = 0.349, p < 0.001$. Portion size was significantly predicted to be negatively related to experience with microaggressions ($\beta = -0.157, p < 0.05$), and highly predicted by to have a negative relationship with contact with Asian Americans ($\beta = -0.068, p < 0.001$), a positive relationship with contact with mainstream Americans ($\beta = 0.059, p < 0.001$), and a positive relationship with feelings of belonging in EDM with general others ($\beta = 0.069, p < 0.01$).

Finally, the Social Belonging Model predicted MDMA pill count, $X^2 (11, n = 663) = 99.647, p < 0.001$. Pill count was predicted to have a positive relationship with both contact with international Asians ($\beta = 0.156, p < 0.05$) and perceptions of MDMA use frequency by friends ($\beta = 0.203, p < 0.05$).

Discussion

The thriving prevalence of illicit substances in the EDM scene is not unique to this decade, but the recent rise in Asian American participation adds the complex variables of acculturation, mental health issues, and sociocultural marginalization. With the dearth of academic literature on Asian American illicit drug use, the present research project aims to fill a

key gap in knowledge about the composition of this growing population, the substance use patterns it has adopted, and potential underlying factors fueling its MDMA usage.

The first objective of this study was to characterize the population of interest in a thorough, comprehensive manner. With such a large sample size, this study was able to determine many shared traits among Asian American young adults in the EDM scene. Most participants were younger than 22 years old, East or Southeast Asian, 2nd generation immigrants, and college-educated. They were initiated into the EDM scene soon after entering college, regularly attend EDM events every few months, emphasized the importance of attending with friends, and plan to continue into their mid-20's as loyal fans of the scene. They also exhibited a high rate of MDMA usage: nearly three-quarters of participants have used MDMA, as opposed to the national rate of 13.1% among 18-25 year olds, and most still use it at least once every 2-3 months (SAMHSA, 2015). While the rate of mental illness is also high among this population at 34.7% reporting some history of mental illness, participants exhibit very little concern for their drug use habits. This finding highlights the importance of this study's second component: to discover the sociocultural factors that lay behind Asian American young adult substance use and in particular, their MDMA use in the EDM scene.

The second objective of this study tests whether acculturative stress and feelings of belonging predicted MDMA usage in Asian American young adults in EDM. Findings supported the hypotheses such that the two proposed models predicted patterns of MDMA use, with only age of MDMA use initiation being unable to be predicted by the Acculturative Stress Model. While some individual measures significantly predicted usage in the opposite direction as hypothesized, the Acculturative Stress and Social Belonging Models provide valuable insight for future developments in culturally-competent mental health care.

Acculturative Stress Model. The Acculturative Stress Model hypothesizes that as an Asian American young adult, the stressors of being an immigrant or immigrant child increases substance use. Acculturative stress manifests in this way because traditional Asian culture heavily stigmatizes mental health, causing Asian Americans to have the lowest help-seeking rates for mental health among all racial groups. It may be that Asian American young adults turn to alternative methods of coping with psychological distress, like substance use.

This nine-factor acculturative stress regression model was found to be statistically sound in predicting frequency of MDMA use, portion size per episode of use, and lifetime pill count. It was not, however, able to predict age of initiation. One potential reason for its inability to predict age may be because the EDM scene, where most MDMA initiation takes place, is highly based in social networks; the primary gateway to entry is having peers already in the scene. Thus, higher acculturative stress levels may not impact your age of initiation as much as your social relations with peers who already participate in the EDM scene. Being initiated into the EDM scene itself is also very homogenously centered on the ages of 18-19 years because of the social networks that become available when many Asian Americans enter college.

In alignment with Hypothesis 1, the Acculturative Stress Model predicted frequency of MDMA use. The general measure of acculturative stress was a statistically significant predictor; however, its negative beta value indicates a negative relationship between acculturative stress and frequency of MDMA usage, which was in the opposite of the predicted direction. While this finding may be counterintuitive, this study's hypothesis did not take into account the bidirectionality of substance use and acculturative stress. Those who use MDMA as an outlet have the ability to release stress through EDM events and the associated MDMA usage, while those who attend EDM events and use MDMA less frequently may have acculturative stress built

up to greater levels. Thus, greater levels of acculturative stress may not always predict less frequency of participation in the EDM scene.

The Acculturative Stress Model predicted MDMA portion size. Three of its nine individual measures were statistically significant in their contribution to the overall model's ability to predict portion size accurately. The first significant measure was the general measure of acculturative stress, whose negative beta value indicated a prediction of portion size that directly opposed the model's hypothesis. However, we must again take bidirectionality into account. Portion size tends to increase with more involvement in the EDM scene due to a build-up of MDMA tolerance levels. Asian American young adults who more actively attend EDM events are therefore likely to consume larger portion sizes while also releasing more of their acculturative stress through the EDM community. On the other hand, Asian American young adults who attend fewer events will have lower MDMA tolerances and smaller portion sizes, in addition to having one less outlet through which to ease their stress. This may explain why greater acculturative stress is related to smaller portion size. The second significant measure predicting MDMA portion size was level of acculturation, which is a measure based on the linear model of assimilation from being less acculturated (more international Asian) to more acculturated (more mainstream American). Acculturation level positively predicted portion size, which aligns with the hypothesis and prior literature on substance use. As Asian American young adults acculturate into mainstream America from an Asian background, they are likely to increase their MDMA usage due to a shift in cultural norms associated with substance use and greater exposure to MDMA users. The third significant predictor was a history of mental illness, which positively predicts portion size. This finding aligns with Hypothesis 1 and prior literature on substance use which posit that substances are used as a response to mental health struggles,

especially in the Asian American community where both drugs and mental health are stigmatized and often untreated.

The Acculturative Stress Model predicted lifetime MDMA pill count, again supporting Hypothesis 1. The measures that most significantly contributed to the model were identity affiliation, level of acculturation, family conflict, and mental illness history. First, Asian Americans who most identified as mainstream American were likely to report a higher pill count than those who most identified as Asian American, and an even higher count than those who most identified as international Asian. This finding aligns with the theory that becoming more “American” than “Asian” increases patterns of substance use because of shifting cultural norms and exposure to more MDMA users. More importantly, Asian Americans who identify as more “international Asian” may have lived in the U.S. for less time or interacted less with those who are more engaged in the EDM scene, thereby giving them fewer opportunities to attend EDM events where pill count is built up. However, the second significant predictor of MDMA pill count, level of acculturation (as calculated via surveyed values, rather than self-reported affiliation) conflicts with the hypothesis by predicting a negative relationship with pill count. One possible explanation is that greater acculturation is not indicative of more acculturative stress, but rather the opposite: that Asian Americans who are more acculturated into mainstream American might have done so because they faced less acculturative stressors or barriers, and thus were able to more quickly acculturate. In experiencing less acculturative stress, the hypothesized driver of MDMA usage, they would be likely to have a lower pill count.

Overall, the most significant predictors of the Acculturative Stress Model are those related to acculturation, acculturative stress (both the general measure and family conflict), and mental illness history. The model was able to predict patterns of MDMA usage in frequency,

portion size, and pill count. However, the measures did not consistently predict usage in the hypothesized direction. Such inconsistency indicates key differences between the outcome variables used to operationalize MDMA usage, and necessitates a closer examination of how each might be differently impacted by measures of acculturation. Alternatively, this discrepancy may serve as a basis for eradicating Gordon's Assimilation Theory, which assumes a linear process of acculturation from "Asian" to "American" and neglects to acknowledge that Asian Americans may be wholly bicultural, rather than having to choose between being more "Asian" or "American". The obsolete theory would be best replaced by the Segmented Assimilation Theory, in which Asian Americans may choose to be bicultural and form their own third fused culture. The existence of a third "Asian American culture" may explain why a measure of acculturation based on the linear model of assimilation could not consistently predict MDMA usage among Asian American young adults.

Moreover, some findings predicted usage in the opposite direction as hypothesized. Frequency of use and portion size, for example, were thought to be positively predicted by acculturative stress, but were actually negatively predicted. This may be due to the neglect of bidirectionality when considering how greater acculturative stress may cause MDMA usage, but that greater MDMA usage may also reduce acculturative stress. With acculturative stress predicting a negative relationship with MDMA usage for both outcome variables, it is possible that MDMA usage reduced stress more effectively than stress increased MDMA usage. Family conflict and history of mental illness, meanwhile, are predictors that are less likely to be affected by the bidirectionality of participation in the EDM scene, as an increase in MDMA consumption has little effect on family conflict or one's history of mental illness. Accordingly, these two

measures were both strong measures of acculturative stress that predicted a positive relationship with MDMA usage, supporting the hypothesis behind this model.

Social Belonging Model. The Social Belonging Model hypothesizes that bicultural Asian Americans are marginalized from both international Asian culture and mainstream American culture because they do not completely fit one or the other. In their desire for social belonging, Asian Americans instead find refuge among other displaced Asian Americans, creating a welcoming “in-between” community such as within the EDM scene. Enculturation into the Asian American EDM community is tightly associated with MDMA; thus, greater feelings of social belonging are likely to be linked to greater MDMA usage.

This eleven-factor regression model was found to be statistically sound in predicting all four measures of MDMA usage. First, the Social Belonging Model predicted age of MDMA initiation. Feelings of belonging in the EDM scene among friends strongly predicted MDMA initiation in the positive direction; this supports Hypothesis 2 because a greater sense of social belonging with friends, who are usually responsible for initiation into MDMA use, will likely facilitate initiation at an earlier age. Age of initiation was also positively predicted by contact with international Asians and contact with mainstream Americans. The direction of each prediction both align with the theorized relationship between greater acculturation and greater substance use patterns; more contact with mainstream Americans (and potentially greater acculturation) results in a younger age of initiation, while more contact with international Asians (potentially less acculturation) results in an older age of initiation. However, this Social Belonging model hypothesizes that less contact with either group is indicative of sociocultural marginalization, which would drive Asian Americans to join the MDMA-using EDM scene. In the context of this hypothesis, only the measure of contact with international Asians is

supportive, since more contact with international Asians (and thus less marginalization) predicts a later age of initiation. This finding suggests that the effect of acculturation on substance use patterns may be stronger than the effect of perceived sociocultural marginalization and desires for belonging. MDMA initiation age was, however, negatively predicted by experience with microaggressions. This finding supports Hypothesis 2 because those who experience more microaggressions, thus perceiving greater marginalization, are likely to sooner join the welcoming Asian American EDM community and use MDMA at an earlier age.

The Social Belonging Model also predicted frequency of MDMA usage. Perceptions of MDMA use in by friends and estimated peer rate of EDM event attendance were the most significant contributors, positively predicting frequency of use. Both of these peer-based factors highlight the importance of social belonging; the more that one's friends are perceived to be using MDMA and attending EDM events, the more frequently one is likely to use MDMA and attend EDM events themselves. Frequency of usage is also positively predicted by feelings of belonging in EDM among the general public; this result supports the idea that MDMA use is increased not just by feeling secure within one's friend circle, but by feeling secure within the broader EDM community they join as well.

MDMA portion size was another outcome variable predicted by the Social Belonging Model. Contact with other Asian Americans and contact with mainstream Americans, in particular, were strongly predictive measures. Greater contact with mainstream Americans increased portion sizes while greater contact with Asian Americans reduced portion sizes; this continues to support the idea that greater acculturation increases substance use. However, the negative relationship between portion sizes and contact with Asian Americans opposes Hypothesis 2, as greater association with Asian Americans was hypothesized to increase

participation in the MDMA-using EDM scene. This result again indicates that acculturation likely plays a larger role in MDMA use than a desire for social belonging among other Asian Americans. Portion size was positively predicted by feelings of belonging with the general EDM public, which supports the hypothesis that stronger social identity with the broader EDM community enhances one's MDMA usage. Experience with microaggressions was negatively predictive of portion size; this opposes the hypothesis that experiences of racism or marginalization would drive participants to find social belonging within the MDMA-using Asian American EDM community. It may be that consuming larger portion sizes of MDMA is not necessary to feeling like one belongs – simply being initiated into the community is enough to secure one's sense of social identity.

The final measure of MDMA usage predicted by the Social Belonging Model was lifetime MDMA pill count. Only two measures of the model significantly predicted pill count: contact with international Asians and perception of MDMA use in EDM by friends, both of which positively predict pill count. Hypothesis 2 suggests that greater contact with international Asians would lessen one's sense of cultural displacement, thus decreasing the need to seek out the MDMA-using EDM community. This model predicts the opposite, with greater contact with international Asians increasing MDMA usage. One explanation may be that more contact with international Asians may actually cause greater acculturative stress because of needing to navigate more culturally-conflicting situations, the acculturative stress consequently increasing pill count. Perception of MDMA use by friends also positively predicts pill count, and this relationship supports Hypothesis 2, in that desires for social belonging in the Asian American EDM community drive individuals to keep up with their peers. As they perceive their friends to be using more MDMA, they also increase their usage.

Overall, the most substantial predictors of MDMA usage from the Social Belonging Model were feelings of belonging in the EDM scene (by both friends and general attendees), perceptions of MDMA use by friends, experiences with microaggressions, and contact with each of the three identity groups. The statistical significance of feelings of belonging and perceptions of MDMA use by friends are both strong indicators that social belonging is highly important to Asian American young adults in the EDM scene. This is unsurprising because of the highly social nature of EDM events, in which some of the main motivations for attending are to join a welcoming community, strengthen peer relationships, and solidify a social identity. Predictions by experiences with microaggressions, on the other hand, were significant but inconsistent in direction. More experiences with microaggressions predicted an earlier MDMA initiation age but a lower portion size per use; it may be that individuals are eager to join the Asian American EDM community and try MDMA, but that they are not necessarily in the scene to abuse MDMA in excessive amounts. Finally, the conflicting predictions given by contact with the three identity groups points to the relatively greater influence of acculturation and acculturative stress on MDMA usage, as opposed to the less significant influence of feelings of marginalization and desire for social belonging.

Overall, the Acculturative Stress Model and the Social Belonging Model both are statistically sound predictors of MDMA usage. However, various overlapping influences caused some inconsistencies with the proposed hypotheses. Only by examining the models in relation to one another did it become clear that measures relating to acculturative stress have the strongest effects on MDMA usage patterns, and that these mechanisms may have prevented measures of social belonging to provide consistent findings.

While age of initiation was predicted only by the Social Belonging Model, likely due to the highly social network-based nature of initiation into EDM and MDMA use, each of the other three outcome variables were predicted by the two proposed models. Thus, the findings of this research provide statistically sound insight into sociocultural factors that influence MDMA usage among Asian American young adults in EDM.

The present study is limited in scope by the convenience sampling used in recruiting participants. While the research was meant to encompass all Asian American young adults who participate in the EDM scene, the majority of participants were those who are active on social media or have a tight-knit network of other Asian American friends who also participate in EDM, from whom they might have heard about the study. In addition, because one of the main incentives for participating was a day pass to a Southern California-based EDM music festival, individuals from outside the region were less likely to participate. Future studies would do well to expand recruitment via platforms outside Facebook and Reddit, and to not bias the sample by not limiting the value of incentives to any particular regional or demographic group.

The next step in researching this population would be to examine acculturative stress and social belonging in one statistical model rather than attempting to separate them. All the measures used in this study are highly intertwined, and to disentangle them requires additional control variables. This would allow the impact of any given measure on MDMA usage to be determined independently of confounding variables. Further psychological studies of Asian American young adults are greatly necessary to clarify the predictions of MDMA usage in these models left unexplained by measures related purely to acculturation and social belonging.

Conclusion

The community examined through this study is uniquely unified by shared experiences of biculturalism and its associated stressors. It is not just the music or event experience that brings Asian American EDM event attendees together -- significant rates of MDMA usage indicate the complexities of mental health and social belonging that drive the growth of this emerging third culture. Substance use is too often overlooked in Asian Americans due to the group's portrayal as the problem-free "model minority"; thus, this research seeks to reveal the striking patterns of illicit drug usage that underlie the Asian American experience in EDM. With Asian American young adults in the EDM scene being a flourishing and expanding subculture, MDMA usage and the sociocultural factors driving it must be understood in order for future studies of illicit drug use to be truly cultural competent. From there, researchers may then be able to effectively develop and implement preventative public health measures to ensure the health and safety of all Asian American young adults, both inside the EDM scene and beyond.

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Table 1

Demographics of All Participants (N=1290) vs. MDMA Users (N=956)

Variable	N	% of total
Gender	1229	--
Female	647	52.6
Male	582	47.4
Gender*	910	100
Female	452	49.7
Male	458	50.3
Ethnicity (by region)	1289	--
South Asian	49	3.8
Southeast Asian	423	32.8
East Asian	562	43.6
Two or more	255	19.8
Ethnicity* (by region)	955	--
South Asian	36	3.8
Southeast Asian	322	33.7
East Asian	402	42.1
Two or more	195	20.4
Generational Status	1282	--
1 st generation	180	14.0
1.5 generation	48	3.7
2 nd generation	990	77.2
3 rd + generation	64	4.9
Generational Status*	950	--
1 st generation	127	13.4
1.5 generation	35	3.7
2 nd generation	740	77.9
3 rd + generation	48	5.1
Parental Income	1191	--
Under \$20k	136	11.4
\$20k - \$40k	183	15.4
\$40k - \$60k	156	13.1
\$60k - \$80k	139	11.7
\$80k - \$100k	127	10.7
\$100k - \$120k	142	12.0
\$120k - \$160k	121	10.2
\$160k - \$200k	74	6.2
Above \$200k	113	9.5
Parental Income*	892	--
Under \$20k	99	11.1
\$20k - \$40k	131	14.7
\$40k - \$60k	124	13.9
\$60k - \$80k	107	12.0
\$80k - \$100k	93	10.4

\$100k - \$120k	107	12.0
\$120k - \$160k	87	9.8
\$160k - \$200k	58	6.5
Above \$200k	86	9.6
Education Level	1287	--
Some primary school	1	0.1
Completed primary school	1	0.1
Some high school	9	0.7
Completed high school	26	2.0
Some college	929	72.2
Completed college	268	20.8
Some graduate school	31	2.4
Completed graduate school	22	1.7
Education Level*	953	--
Some primary school	1	0.1
Completed primary school	1	0.1
Some high school	6	0.6
Completed high school	16	1.7
Some college	684	71.8
Completed college	205	21.5
Some graduate school	23	2.4
Completed graduate school	17	1.8
English Fluency	1288	--
A little fluent	5	0.4
Somewhat fluent	7	0.5
Moderately fluent	34	2.6
Completely fluent	1242	96.4
English Fluency*	954	--
A little fluent	3	0.3
Somewhat fluent	4	0.4
Moderately fluent	24	2.5
Completely fluent	923	96.8
Mental Illness	1290	--
History of any mental illness	447	34.7
History of anxiety	254	19.7
History of depression	309	24.0
Mental Illness*	956	--
History of any mental illness	342	35.8
History of anxiety	198	20.7
History of depression	243	25.4

Note. *Indicates statistics for MDMA users only.

Table 2

Participation in the EDM Scene of All Participants (N=1290) vs. MDMA Users (N=956)

Variable	N	% of total	Mean	SD	Min	Max
Age of EDM Initiation	1283	--	19.09	2.28	13	38
Age of EDM Initiation*	952	--	19.04	2.26	13	31
Number of Events Attended in Past Year	1282	--	7.73	8.21	1	100
Number of Events Attended in Past Year*	952	--	8.33	8.11	1	100
Rate of Attendance	1287	--	--	--	--	--
Fewer than once a year	35	2.7	--	--	--	--
Once a year	101	7.8	--	--	--	--
Every 4-6 months	289	22.5	--	--	--	--
Every 2-3 months	458	35.6	--	--	--	--
Once a month	272	21.1	--	--	--	--
Once every 2-3 weeks	98	7.6	--	--	--	--
More than once every 2-3 weeks	34	2.6	--	--	--	--
Rate of Attendance*	953	--	--	--	--	--
Fewer than once a year	13	1.4	--	--	--	--
Once a year	47	4.9	--	--	--	--
Every 4-6 months	198	20.8	--	--	--	--
Every 2-3 months	362	38.0	--	--	--	--
Once a month	222	23.3	--	--	--	--
Once every 2-3 weeks	83	8.7	--	--	--	--
More than once every 2-3 weeks	28	2.9	--	--	--	--
Estimated Peer Rate of Attendance	1288	--	--	--	--	--
Fewer than once a year	12	0.9	--	--	--	--
Once a year	28	3.0	--	--	--	--
Every 4-6 months	237	18.4	--	--	--	--
Every 2-3 months	538	41.8	--	--	--	--
Once a month	308	23.9	--	--	--	--
Once every 2-3 weeks	122	9.5	--	--	--	--
More than once every 2-3 weeks	33	2.6	--	--	--	--
Estimated Peer Rate of Attendance*	954	--	--	--	--	--
Fewer than once a year	3	0.3	--	--	--	--
Once a year	18	1.9	--	--	--	--
Every 4-6 months	164	17.2	--	--	--	--
Every 2-3 months	407	42.6	--	--	--	--
Once a month	238	24.9	--	--	--	--
Once every 2-3 weeks	97	10.1	--	--	--	--
More than once every 2-3 weeks	27	2.8	--	--	--	--

Note. *Indicates statistics for MDMA users only.

Table 3

Illicit Drug Use Patterns of All Participants (N=1290) and MDMA Users (N=956)

Variable	N	% of total	Mean	SD	Min	Max
General Illicit Drug Use	1290	--	--	--	--	--
Have used	983	76.2	--	--	--	--
Have not used	307	23.8	--	--	--	--
MDMA Usage	1290	100	--	--	--	--
Have used	956	74.1	--	--	--	--
Have not used	334	25.9	--	--	--	--
Age of MDMA Initiation*	885	--	19.49	2.32	12	31
Frequency of MDMA Use at EDM Events*	956	--	--	--	--	--
Never	6	0.6	--	--	--	--
Fewer than once a year	65	6.8	--	--	--	--
Once a year	77	8.1	--	--	--	--
Every 4-6 months	294	30.8	--	--	--	--
Every 2-3 months	344	36.0	--	--	--	--
Once a month	139	14.5	--	--	--	--
Once every 2-3 weeks	31	3.2	--	--	--	--
MDMA Portion Size ^{1*}	953	--	0.91	0.62	0.25	5.00
MDMA Pill Count ^{2*}	916	--	22.67	52.4	0.25	600

Note. *Indicates statistics for MDMA users only.

¹ Portion size is measured by number of ecstasy pills taken per episode of usage. Measurements received in milligrams of MDMA were converted into number of pills at a rate of 75mg/pill.

² Pill count refers to the total number of ecstasy pills consumed over lifetime. Measurements received in milligrams of MDMA were converted into number of pills at a rate of 75mg/pill.

Table 4

Predictor Variable Means and Standard Deviations for MDMA Users Only (N=956)

Variable	N	% of total	Mean	SD	Min	Max
<i>Acculturative Stress-Related Predictor Variables</i>						
Strongest Identity Affiliation	889	--	--	--	--	--
International Asian	20	2.2	--	--	--	--
Asian American	724	81.4	--	--	--	--
Mainstream American	145	16.3	--	--	--	--
Asian American Identity Strength	954	--	0.76	0.34	0.00	1.00
Level of Acculturation	954	--	2.18	0.36	1.00	3.00
Asian Enculturation	944	--	5.65	0.90	1.00	7.00
Asian Values	940	--	4.22	0.74	1.42	6.92
Family Conflict	952	--	3.83	1.44	1.00	7.00
Acculturative Stress	927	--	2.87	0.86	1.00	6.36
Mental Illness	956	--	--	--	--	--
History of any mental illness	342	35.8	--	--	--	--
No history of mental illness	614	64.2	--	--	--	--
Help-Seeking Attitudes	942	--	4.18	0.98	1.00	7.00
<i>Social Belonging-Related Predictor Variables</i>						
Perceived Social Acceptance	922	--	4.64	0.82	1.79	6.92
Perceived Risk of Social Exclusion	944	--	3.24	1.29	1.00	7.00
Contact with International Asians	950	--	2.68	1.25	1.00	7.00
Contact with Asian Americans	947	--	5.69	1.31	1.50	7.00
Contact with Mainstream Americans	948	--	4.52	1.35	1.00	7.00
Experience with Microaggressions	935	--	0.42	0.29	0.00	1.00
Feeling of Belonging in EDM with Friends	953	--	6.36	0.87	1.00	7.00
Feeling of Belonging in EDM with General Public	946	--	5.52	1.06	1.00	7.00
Perception of MDMA Use in EDM by Friends	946	--	5.03	1.14	1.00	7.00
Perception of MDMA Use in EDM by General Public	884	--	5.60	1.20	1.00	8.00
Estimated Peer Rate of Attendance	954	--	4.32	1.04	1.00	7.00

Table 5

Bivariate Correlation Table between Acculturative-Stress Related Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	r	1	-.054	-.106**	.108**	.031	-.043	-.061*	.023	-.030	.637**	.028	.203**	.272**
	Sig.		.051	.000	.000	.270	.124	.030	.404	.280	.000	.386	.000	.000
2. Parental Income	r	-.054	1	-.001	-.019	.077**	-.123**	-.005	.041	.000	.002	-.036	.009	-.047
	Sig.	.051		.977	.497	.006	.000	.394	.142	.994	.941	.260	.789	.152
3. Asian American Identity	r	-.106**	-.001	1	-.647**	.071*	-.007	.059*	-.066*	-.015	.023	.065*	-.129**	-.050
	Sig.	.000	.977	.000	.011	.800	.017	.038	.019	.601	.501	.043	.000	.127
4. Acculturation	r	.108**	-.019	-.647**	1	-.072**	.042	-.098**	.085**	.056*	-.031	-.047	.119**	.039
	Sig.	.000	.497	.000	.010	.136	.000	.115	.002	.045	.363	.145	.000	.237
5. Asian Enculturation	r	-.083**	.077**	.071*	-.072**	1	-.104**	.276**	-.073**	-.070*	-.034	-.030	-.055	-.030
	Sig.	.003	.006	.011	.010	.000	.000	.000	.009	.012	.309	.357	.087	.360
6. Family Conflict	r	.031	-.123**	-.007	.042	-.104**	1	.139**	-.049	.079**	.002	.056	-.036	.068*
	Sig.	.270	.000	.800	.136	.000	.000	.000	.084	.005	.948	.081	.269	.037
7. Asian Values	r	-.043	-.024	.067*	-.098**	.276**	.139**	1	.080**	-.303**	-.052	.017	-.015	.042
	Sig.	.124	.394	.017	.000	.000	.000	.005	.000	.003	.126	.604	.649	.208
8. Acculturative Stress	r	-.061*	-.005	.059*	-.045	-.036	.251**	.080**	1	.027	-.038	-.084**	-.094**	-.025
	Sig.	.030	.850	.038	.115	.208	.000	.005	.344	.000	.272	.010	.004	.444
9. Help-Seeking Attitudes	r	.023	.041	-.066*	.085**	-.073**	-.049	-.303**	.027	1	.128**	.049	-.026	.000
	Sig.	.404	.142	.019	.002	.009	.084	.000	.344	.000	.149	.262	.415	.993
10. Mental Illness History	r	-.030	.000	-.015	.056*	-.070*	.079**	-.084**	.102	.128**	1	-.063	.040	.087**
	Sig.	.280	.994	.601	.045	.012	.005	.003	.000	.000	.060	.505	.211	.008
11. MDMA Initiation Age	r	.637**	.002	.023	-.031	-.034	.002	-.052	-.038	.049	1	-.017	-.033	-.088**
	Sig.	.000	.941	.501	.363	.309	.948	.126	.272	.149	.060	.620	.331	.010
12. MDMA Frequency of Use	r	.028	-.036	.065*	-.047	-.030	.056	.017	-.084**	-.036	-.021	1	.127**	.124**
	Sig.	.386	.260	.043	.145	.357	.081	.604	.010	.262	.505	.620	.000	.000
13. MDMA Portion Size	r	.203**	.009	-.129**	.119**	-.055	-.036	-.015	-.094**	-.026	.040	.127**	1	.320**
	Sig.	.000	.789	.000	.000	.087	.269	.649	.004	.415	.211	.331	.000	.000
14. MDMA Pill Count	r	.272**	-.047	-.050	.039	-.030	.068*	.042	-.025	.000	.087**	.124**	.320**	1
	Sig.	.000	.152	.127	.237	.360	.037	.208	.444	.993	.008	.010	.000	.000

Note. *p < .05, **p < .01 (2-tailed). Pearson correlations denoted by "r".

Table 6

Correlations between Social Belonging-Related Variables and MDMA Usage

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1. Age	r	1	-.054	.014	-.016	.049	-.073**	.054	-.089**	.025	-.001	-.007	-.021	.021	.637**	.028	.203**	.272**
	Sig.		.051	.616	.572	.081	.009	.054	.001	.379	.984	.812	.454	.460	.000	.386	.000	.000
2. Parental Income	r	-.054	1	.123**	-.065*	-.002	.016	-.073**	-.070*	.021	-.027	-.052	-.036	-.019	.002	-.036	.009	-.047
	Sig.	.051		.000	.020	.932	.573	.009	.013	.453	.329	.061	.204	.521	.941	.260	.789	.152
3. Perceived Acceptance	r	.014	.123**	1	-.628**	-.012	.175**	.086**	-.125**	.201**	.134**	-.012	-.013	.013	.041	.028	.013	-.027
	Sig.	.616	.000		.000	.669	.000	.003	.000	.000	.000	.664	.642	.669	.227	.388	.702	.412
4. Perceived Risk of Exclusion	r	-.016	-.065*	-.628**	1	.031	-.187**	-.031	.209**	-.171**	-.164**	.000	-.036	-.035	-.017	-.078*	.017	.022
	Sig.	.572	.020	.000		.265	.000	.270	.000	.000	.000	.987	.199	.229	.607	.015	.591	.509
5. International Asian Contact	r	.049	-.002	-.012	.031	1	.093**	.052	.121**	-.066*	.023	-.040	-.066*	.058	-.029	.014	.088**	
	Sig.	.081	.932	.669	.265		.001	.065	.000	.018	.407	.156	.020	.033	.083	.359	.673	.007
6. Asian American Contact	r	-.073**	.016	.175**	-.187**	.093**	1	-.065*	.023	.207**	.047	.055*	.162**	.028	.122**	-.128**	-.056	
	Sig.	.009	.573	.000	.000	.001		.019	.413	.000	.093	.048	.000	.002	.399	.000	.000	.090
7. Mainstream American Contact	r	.054	-.073**	.086**	-.031	.052	-.065*	1	.022	.083**	.107**	.031	-.004	.001	-.071*	.001	.133**	.028
	Sig.	.054	.009	.003	.270	.065	.019		.441	.003	.000	.275	.887	.983	.036	.968	.000	.397
8. Experience with Micro-aggressions	r	-.089**	-.070*	-.125**	.209**	.121**	.023	.022	1	-.012	-.036	.028	.014	.018	-.057	-.009	-.068*	.030
	Sig.	.001	.013	.000	.000	.000	.413	.441		.660	.204	.314	.621	.547	.090	.777	.037	.371
9. Belonging with Friends in EDM	r	.025	.021	.201**	-.171**	-.066*	.207**	.083**	-.012	1	.584**	.114**	.199**	.181**	.031	.149**	.013	-.032
	Sig.	.379	.453	.000	.000	.018	.000	.003	.660		.000	.000	.000	.000	.354	.000	.684	.334
10. Belonging with Public in EDM	r	-.001	-.027	.134**	-.164**	.023	.047	.107**	-.036	.584**	1	.090**	.133**	.082**	-.067*	.174**	.089**	.005
	Sig.	.984	.329	.000	.000	.407	.093	.000	.204	.000		.001	.000	.005	.046	.000	.006	.886
11. Friends' Attendance Rate	r	-.007	-.052	-.012	.000	-.040	.055*	.031	.028	.114**	.090**	1	.415**	-.023	.359**	-.009	-.054	
	Sig.	.812	.061	.664	.987	.156	.048	.275	.314	.000	.001		.000	.000	.501	.000	.770	.098

Table 6 Continued

12. MDMA Usage by Friends	r	-.021	-.036	-.013	-.036	-.066*	.162**	-.004	.014	.199**	.133**	.415**	1	.527**	-.070*	.453**	.003	.149**
	Sig	.454	.204	.642	.199	.020	.000	.887	.621	.000	.000	.000	.000	.000	.039	.000	.932	.000
13. MDMA Usage by Public	r	.021	-.019	.013	-.035	-.062*	.088**	.001	.018	.181**	.082**	.329**	.527**	1	-.031	.234**	-.041	.077*
	Sig	.460	.521	.669	.229	.033	.002	.983	.547	.000	.005	.000	.000	.000	.376	.000	.220	.023
14. MDMA Initiation Age	r	.637**	.002	.041	-.017	.058	.028	-.071*	-.057	.031	-.067*	-.023	-.070*	-.031	1	-.017	-.033	-.088**
	Sig	.000	.941	.227	.607	.083	.399	.036	.090	.354	.046	.501	.039	.376	.620	.331	.010	.010
15. MDMA Frequency of Use	r	.028	-.036	.028	-.078*	-.029	.122**	.001	-.009	.149**	.174**	.359**	.453**	.234**	-.017	1	.127**	.124**
	Sig	.386	.260	.388	.015	.359	.000	.968	.777	.000	.000	.000	.000	.000	.620	.000	.000	.000
16. MDMA Portion Size	r	.203**	.009	.013	.017	.014	-.128**	.133**	-.068*	.013	.089**	-.009	.003	-.041	-.033	.127**	1	.320**
	Sig	.000	.789	.702	.591	.673	.000	.000	.037	.684	.006	.770	.932	.220	.331	.000	.000	.000
17. MDMA Pill Count	r	.272**	-.047	-.027	.022	.088**	-.056	.028	.030	-.032	.005	.054	.149**	.077*	-.088**	.124**	.320**	1
	Sig	.000	.152	.412	.509	.007	.090	.397	.371	.334	.886	.098	.000	.023	.010	.000	.000	.000

Note. *p < .05, **p < .01 (2-tailed). Pearson correlations denoted by “r”.

Table 7

Multiple Regression Models Predicting Age of MDMA Initiation

Variables	N	Pearson Chi- Square	B	SE	Omnibus Test		
					Likelihood Ratio Chi- Square	df	p
Acculturative Stress Model	719	5.398			14.995	9	0.091
Strongest Identity Affiliation			0.753	0.546		1	0.168
Asian American Identity Strength			0.152	0.362		1	0.675
Acculturation			-0.725	0.658		1	0.270
Asian Enculturation			-0.048	0.106		1	0.651
Asian Values			-0.216	0.131		1	0.098
Family Conflict			0.063	0.063		1	0.317
Acculturative Stress			-0.216	0.108		1	0.046*
Mental Illness			-0.357	0.186		1	0.055
Help-Seeking Attitudes			0.132	0.091		1	0.150
Social Belonging Model	732	5.117			34.669	11	0.000**
Perceived Social Acceptance			0.092	0.137		1	0.499
Perceived Risk of Social Exclusion			0.054	0.092		1	0.556
Contact with International Asians			0.166	0.068		1	0.014*
Contact with Asian Americans			-0.038	0.069		1	0.581
Contact with Mainstream Americans			-0.142	0.064		1	0.025*
Experience with Microaggressions			-0.740	0.305		1	0.015*
Feeling of Belonging in EDM with Friends			0.510	0.125		1	0.000**
Feeling of Belonging in EDM with General Public			-0.247	0.096		1	0.010*
Perception of MDMA Use in EDM by Friends			-0.173	0.100		1	0.084
Perception of MDMA Use in EDM by General Public			0.057	0.085		1	0.504
Estimated Peer Rate of Attendance			-0.019	0.094		1	0.842

Note. *p < .05, **p < .01. These models utilized a linear regression analysis.

Table 8

Multiple Regression Models Predicting Frequency of MDMA Use

Variables	N	Pearson Chi- Square	B	SE	Omnibus Test		
					Likelihood Ratio Chi- Square	df	p
Acculturative Stress Model	771	1.376			18.363	9	0.031*
Strongest Identity Affiliation			0.283	0.271		1	0.297
Asian American Identity Strength			0.117	0.184		1	0.526
Acculturation			-0.332	0.327		1	0.310
Asian Enculturation			-0.082	0.052		1	0.110
Asian Values			-0.025	0.064		1	0.701
Family Conflict			0.050	0.31		1	0.105
Acculturative Stress			-0.181	0.052		1	0.000**
Mental Illness			0.008	0.091		1	0.928
Help-Seeking Attitudes			-0.033	0.045		1	0.462
Social Belonging Model	764	0.997			241.859	11	0.000**
Perceived Social Acceptance			-0.043	0.512		1	0.458
Perceived Risk of Social Exclusion			-0.059	0.039		1	0.135
Contact with International Asians			-0.028	0.030		1	0.355
Contact with Asian Americans			0.042	0.030		1	0.151
Contact with Mainstream Americans			0.007	0.028		1	0.808
Experience with Microaggressions			-0.090	0.132		1	0.496
Feeling of Belonging in EDM with Friends			-0.034	0.054		1	0.521
Feeling of Belonging in EDM with General Public			0.092	0.042		1	0.027*
Perception of MDMA Use in EDM by Friends			0.400	0.042		1	0.000**
Perception of MDMA Use in EDM by General Public			0.006	0.036		1	0.870
Estimated Peer Rate of Attendance			0.231	0.040		1	0.000**

Note. *p < .05, **p < .01. These models utilized a linear regression analysis.

Table 9

Multiple Regression Models Predicting MDMA Portion Size

Variables	N	Pearson Chi- Square	B	SE	Omnibus Test		
					Likelihood Ratio Chi- Square	df	p
Acculturative Stress Model	773	0.352			34.683	9	0.000**
Strongest Identity Affiliation			-0.149	0.136		1	0.276
Asian American Identity Strength			-0.090	0.090		1	0.317
Acculturation			0.338	0.165		1	0.040*
Asian Enculturation			-0.034	0.026		1	0.188
Asian Values			0.007	0.032		1	0.827
Family Conflict			-0.016	0.016		1	0.303
Acculturative Stress			-0.060	0.026		1	0.022*
Mental Illness			0.102	0.046		1	0.026*
Help-Seeking Attitudes			-0.024	0.023		1	0.299
Social Belonging Model	766	0.349			52.393	11	0.000**
Perceived Social Acceptance			0.010	0.035		1	0.781
Perceived Risk of Social Exclusion			0.029	0.023		1	0.219
Contact with International Asians			0.006	0.017		1	0.737
Contact with Asian Americans			-0.068	0.017		1	0.000**
Contact with Mainstream Americans			0.059	0.016		1	0.000**
Experience with Microaggressions			-0.157	0.078		1	0.045*
Feeling of Belonging in EDM with Friends			-0.006	0.032		1	0.840
Feeling of Belonging in EDM with General Public			0.069	0.025		1	0.005**
Perception of MDMA Use in EDM by Friends			0.018	0.025		1	0.467
Perception of MDMA Use in EDM by General Public			-0.005	0.214		1	0.811
Estimated Peer Rate of Attendance			-0.020	0.238		1	0.395

Note. *p < .05, **p < .01. These models utilized a linear regression analysis.

Table 10

Multiple Regression Models Predicting MDMA Pill Count

Variables	N	Pearson Chi- Square	B	SE	Omnibus Test		
					Likelihood Ratio Chi- Square	df	P
Acculturative Stress Model	673	100.626			2678.63	9	0.000**
Strongest Identity Affiliation			1.497	0.534		1	0.005**
Asian American Identity Strength			0.093	0.331		1	0.779
Acculturation			-1.458	0.577		1	0.011*
Asian Enculturation			-0.084	0.114		1	0.458
Asian Values			0.000	0.123		1	0.999
Family Conflict			0.139	0.066		1	0.034*
Acculturative Stress			-0.187	0.116		1	0.107
Mental Illness			0.419	0.196		1	0.032*
Help-Seeking Attitudes			0.082	0.093		1	0.372
Social Belonging Model	663	99.647			2562.71	11	0.000**
Perceived Social Acceptance			-0.196	0.117		1	0.095
Perceived Risk of Social Exclusion			-0.082	0.083		1	0.324
Contact with International Asians			0.156	0.071		1	0.029*
Contact with Asian Americans			-0.038	0.089		1	0.667
Contact with Mainstream Americans			0.035	0.059		1	0.560
Experience with Microaggressions			-0.246	0.434		1	0.571
Feeling of Belonging in EDM with Friends			-0.064	0.129		1	0.618
Feeling of Belonging in EDM with General Public			-0.022	0.110		1	0.841
Perception of MDMA Use in EDM by Friends			0.203	0.102		1	0.046*
Perception of MDMA Use in EDM by General Public			0.075	0.080		1	0.353
Estimated Peer Rate of Attendance			0.057	0.112		1	0.611

Note. *p < .05, **p < .01. These models utilized a Poisson regression analysis.

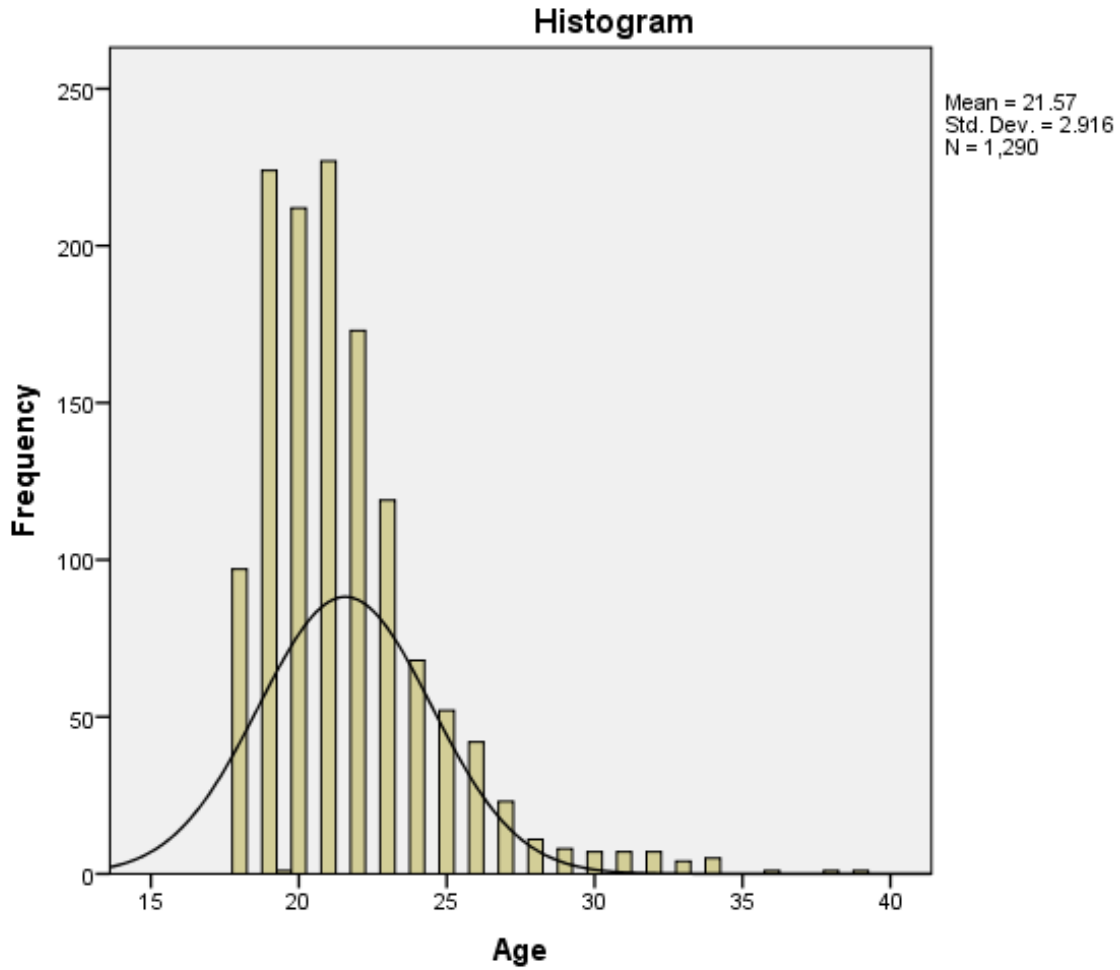


Figure 1. A histogram depicting ages of all participants ($N = 1290$). The average age was 21.57 years ($SD = 2.916$). The proportion of participants who reported an age of 21 or younger was 58.5%.

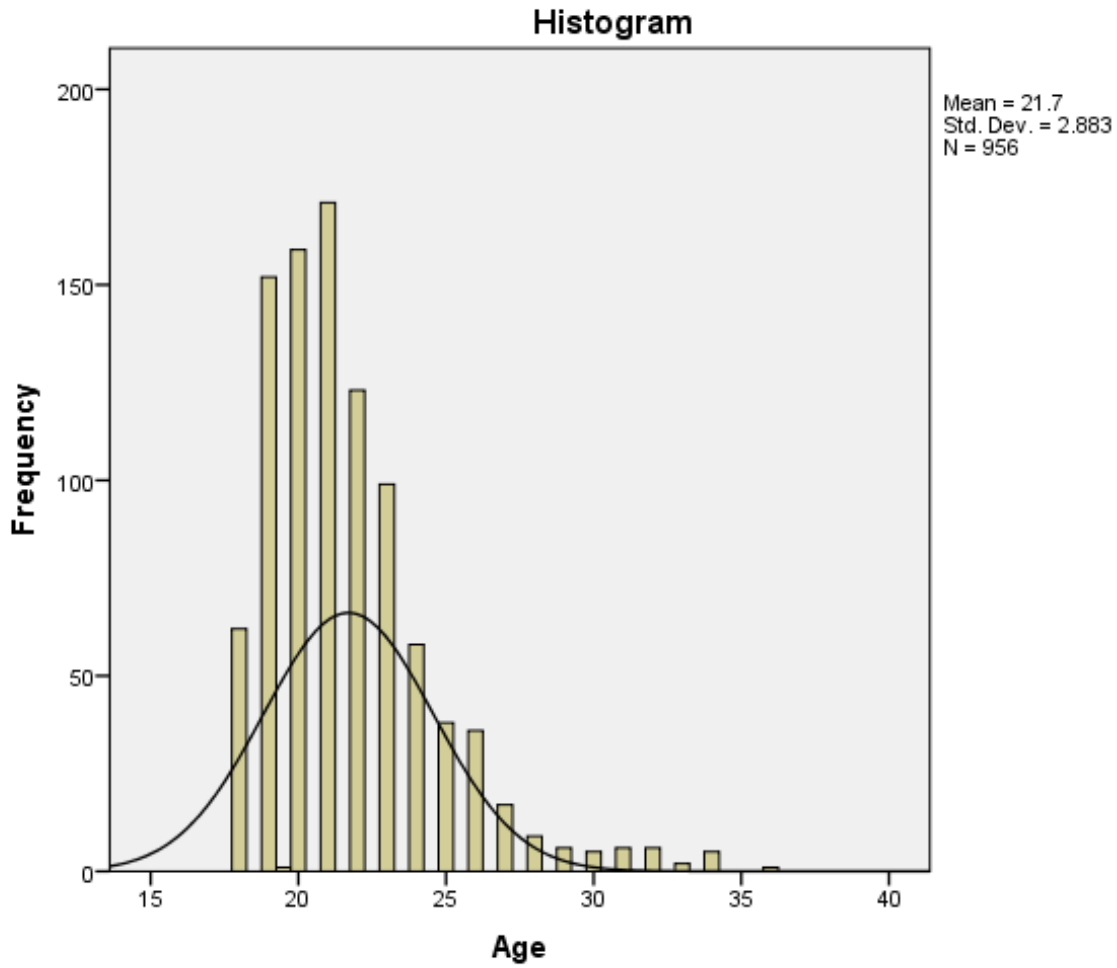


Figure 2. A histogram depicting ages of MDMA users only ($N = 956$). The average age was 21.70 years ($SD = 2.883$). The proportion of participants who reported an age of 21 or younger was 57.0%.

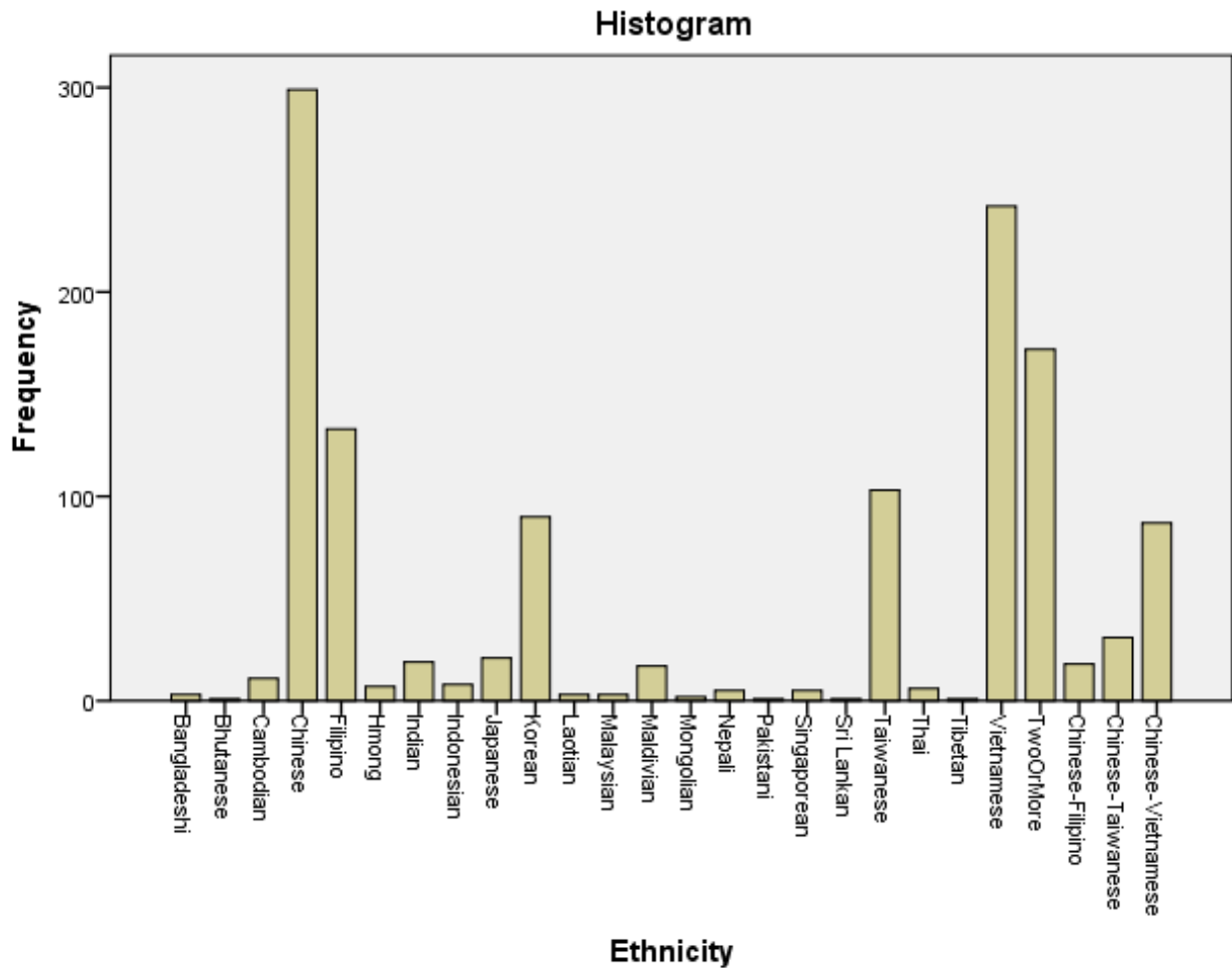


Figure 3. A histogram depicting frequencies of participant identities by ethnicity. The most common ethnicities reported were Chinese ($N = 299$, 23.2%), Vietnamese ($N = 242$, 18.8%), and Filipino ($N = 133$, 10.3%). Category “TwoOrMore” indicates participants who identified with more than one ethnicity and did not fall into the category of Chinese-Filipino, Chinese-Taiwanese, or Chinese-Vietnamese.