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Profiles of Positive and Negative Risk-taking among Asian and Non-Asian American Emerging Adults

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Profiles of Positive and Negative Risk-taking among Asian and Non-Asian American Emerging Adults

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ABSTRACT

Profiles of Positive and Negative Risk-taking among Asian and Non-Asian American Emerging Adults

Yea Won Park

Emerging adults can engage in both positive and negative risk-taking. Based on recent previous research that identified various risk-taking profiles (Duell et al., 2022), the current project extends the literature in several ways. The purpose of this study was to (1) identify profiles of risk-taking behavior among US college students, (2) examine how correlates of cognitive values and interpersonal factors relate to risk-taking groups, and (3) investigate the role of cultural values in risk-taking profiles among Asian and non-Asian American college students. The sample was 401 participants recruited from universities in the US. Latent Profile Analyses indicated that 4-profile solution (Low Positive No Negative, High Positive and Extreme Negative, Average on Both, Low Positive and High Negative) had the best fit of indicators for positive and negative risk-taking. Multinomial logistic regression models demonstrated that greater eudaimonic motives, hedonic comfort motives, peer positive risk-taking, collectivistic orientation, and familial ethnic socialization related to belonging in Profile 1 (Low Positive No Negative). Greater thrill-seeking beliefs, psychological control of fathers, and Asian American values associated with belonging in Profile 2 (High Positive and Extreme Negative). Greater thrill-seeking beliefs and behavioral control of mothers related with belonging in Profile 3 (Average on Both), whereas greater peer negative risk-taking, behavioral control of fathers, individualistic orientation, and identifying as Non-Asian American related with belonging in Profile 4 (Low Positive and High Negative). As risk-taking research has more often focused on negative risk-taking and as Asian Americans are underrepresented in risk-taking research (Yip et al., 2022), this study promoted a more balanced view on Asian American and Non-Asian American emerging adults' positive and negative risk-taking. Given that this study examined the relation between modifiable factors (than demographic factors) and risk-taking subgroups, findings of this study can help researchers develop future interventions.

Keywords: positive and negative risk-taking, emerging adults, latent profile-analysis, Asian Americans and non-Asian Americans, cultural factors

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Profiles of Positive and Negative Risk-taking Behavior among Asian and Non-Asian American Emerging Adults

Risk-taking is often described to have two characteristics: uncertainty and the likelihood of an undesirable result (Boyer, 2006; Duell & Steinberg, 2019). Substantial research has examined various forms of negative risks (e.g., physical, legal, financial, and psychological; Lee & Bourdage, 2020) that can have significant public health implications. However, scholars also argue for the significance of positive risk behavior that can yield potential benefits (Dahl et al., 2018; Duell & Steinberg, 2020). Positive risk-taking refers to engaging in risky behaviors that are socially encouraged and adaptive to one's well-being (Duell & Steinberg, 2019; 2020). Positive and negative risk-taking have been reported to be positively correlated and to occur in rather complex patterns (Duell & Steinberg, 2020; Duell et al., 2022; Fryt et al., 2022). Therefore, investigating both types of risk-taking and how they occur in concert is important. Examining overall risky behavior during emerging adulthood is critical because this period is a phase for exploration and growth (Crone & Dahl, 2012; Nelson, 2020). In addition, little is understood about cultural influences on risk-taking, such as whether Asian and non-Asian groups prioritize different types of risks or if correlates uniquely relate to risk-taking profiles in different ethnic groups. To address these issues, the aims of this study were to a) identify profiles of risk-taking among emerging adults, b) examine psychological correlates of risk-taking profiles, and c) explore how cultural factors are related to risk-taking profiles among Asian and non-Asian college students.

Defining Risks: Negative and Positive

Risk-taking involves an element of uncertainty and the probability of experiencing an outcome that lies along a spectrum of being good or bad (Crone et al., 2016; Duell & Steinberg,

2021). Risks lie on a spectrum that can be distinguished as negative or positive based on the outcome relating to one's well-being, the severity of potential costs, social acceptability, and developmentally facilitative nature of the behavior (Duell & Steinberg, 2019). For example, on the negative end of the spectrum, negative risks are behaviors that are dangerous, illegal, and mostly have public health implications (e.g., delinquency), whereas risk behaviors in the mid-range of the spectrum can include risks that have some ambiguity regarding social acceptability, such as protesting for social justice or driving through a red light to help an injured passenger. On the opposite end are positive risks that are developmentally facilitative, socially acceptable, and adaptive for one's well-being (Duell & Steinberg, 2019). Some examples of positive risks include initiating a new friendship, standing up for a friend, signing up for a challenging course, and applying for the student government council.

Taken together, both types of risks can contribute to a constructive purpose (e.g., make new friends despite irresponsible drinking; Duell et al., 2022) and even a nonconstructive outcome (e.g., an individual may experience rejection when not getting a student government position). However, positive risks are unique as they are likely to facilitate healthy trajectories (e.g., identity development; Dahl et al., 2018), aid in achieving developmental milestones (Ellis et al., 2012), and are encouraged by society (Duell & Steinberg, 2018; Dworkin, 2005). Stepping away from a deficit viewpoint (i.e., a focus on negative risk only) and studying both negative and positive behavioral patterns is an exciting avenue that is likely to have implications for the individual and public.

Risk Taking in Emerging Adulthood

In the US, a wider gap has developed between the end of adolescence and beginning of adulthood due to an increase in post-secondary education and the delayed age of first marriage,

(Schwartz & Petrova, 2019). Despite variations by social status and ethnicity, emerging adulthood is a developmentally distinct period that is defined as the transition from the end of secondary school to the onset of adulthood commitment (i.e., 18-29 year olds; Arnett, 2007; 2015; Nelson, 2020). This period is described as having more autonomous individualized decision-making opportunities, being less structured (compared to other life-span periods), and having five unique features: identity exploration, instability, self-focus, feeling in-between, and possibilities (Arnett, 2004; Schwartz & Petrova, 2019). Based on Arnett's (2000) characteristics of emerging adulthood, Nelson (2020) reframes this period to be a time of positive growth through engaging in exploration, reorganizing relationships, allowing experimentation, and self-focus that leads to flourishing. Therefore, although previous viewpoints have somewhat focused on how emerging adulthood being accompanied with challenges (e.g., romantic relationships; Ranta et al., 2014), others encourage a different perspective on viewing emerging adulthood as a beneficial period that can pivot in the positive direction (O'Connor et al., 2014).

In relation to risk-taking behavior during emerging adulthood, most research has examined negative risk-taking behaviors, whereas a few have investigated positive risks. For instance, a considerable amount of literature has indicated high levels of negative risk-taking behaviors, such as binge-drinking (Kriger et al., 2018), driving under influence (Li et al., 2017), substance use (Andrews & Westling, 2016), and cross-nationally in the health domain (Duell & Steinberg, 2018). On the other hand, some qualitative work show that college students describe risk-taking as forms of experimentation that can aid in refining their identities (Dworkin, 2005), and some quantitative work suggests that positive risk-taking is more common in emerging adulthood than adolescence (Fryt et al., 2021). A recent study reported that the pattern of positive risk-taking among 12-71 year olds manifests as an inverted U-shape, which indicates an increase

throughout emerging adulthood and peak during middle adulthood (Fryt et al., 2022). Thus, because risk-taking (both negative and positive) can be indices of adjustment and growth, it is important to examine positive risks among emerging adults, and further explore patterns of positive and negative behavioral patterns in the same study, as such are seldom studied together in the literature.

Asian and non-Asian Americans

Within the current study, the term *Asian Americans* characterizes Asian Americans through a panethnic definition. Individuals whose ancestry traces back to the continent of Asia, such as Bangladesh, China, India, Japan, Korea, Philippines, Taiwan, and Vietnam could be included in the broad Asian American panethnic group. It is stressed that Asian Americans should not be assumed as a homogenous pan-ethnic group and within-group diversity (e.g., generation status, premigration experiences, socioeconomic status) is expected among the various national origin groups. Although conducting analyses by specific national origin groups is ideal due to expected heterogeneity among Asian American groups (Yoshikawa et al., 2016), the present study combined all Asian ethnic groups for practical analysis purposes due to recruitment challenges. Despite Asian Americans being projected to be the largest immigrant group in the US by 2060 (Lopez et al., 2017), there is a continued lag on developmental research involving Asian Americans (see Yip et al., 2023). Furthermore, there is no research to date that investigates overall risk-taking behaviors among Asian Americans, which may be due to the model minority myth. The model minority myth mischaracterizes Asian Americans as individuals who do not experience vulnerabilities due to their hard-working work ethic and being successful despite societal challenges (Alvarez et al., 2006). Others note that the model minority myth portrayal of Asian Americans as being high achieving and not experiencing

challenges contributes to the lack of examining behavioral outcomes such as problematic negative risk-taking (Yip et al., 2023). Therefore, to further dispute the erroneous stereotype of the model minority myth, the present study seeks to provide a starting point from which to decipher how risk-taking profiles manifest in a pooled sample of Asian Americans.

On the other hand, the term *non-Asian Americans* was used to characterize other U.S. ethnic-racial groups. It is also acknowledged that combining non-Asian Americans is not ideal because a vast amount of heterogeneity likely exists among the other U.S. ethnic racial groups. However, as previous research has utilized such cross-comparison methods (e.g., Nguyen et al., 2004 collapsed whites, Hispanics, blacks, Native Hawaiians, and Native Americans as non-Asian group) to understand the psychological needs of Asian American populations, the present study takes the same approach to understand further the relevance of cultural values in risk-taking profiles among a pooled sample of US emerging adults.

Variable-centered versus Person-centered approaches

Variable-centered approaches offer valuable information that helps identify potential factors that lead to differences among individuals by identifying associations between variables in a group of people (Laura & Hoffman, 2006; Manusson, 2003). Research utilizing a variable-centered approach has reported that greater sensation seeking is related to greater negative and positive risk-taking among adolescents and college students (Duell & Steinberg, 2020; Fischer & Smith, 2004). However, such methods lack the ability to identify differences/similarities of patterns of attributes that work differently for people because they consider the sample to be homogenous (e.g., greater sensation seeking will relate to greater negative risk-taking for everybody; Laursen & Hoff, 2006). On the other hand, person-centered approach is built upon the assumption that population is heterogenous in that some predictors may function differently

for certain subpopulations (e.g., group 1 can have an association of risk taking with hedonic motives whereas group 2 does not show significant associations). Therefore, person-centered approaches attempt to classify people into a subgroups, which are prevalent in the population. Because there may be several distinct unobserved subpopulations that manifest different overall risky behavior (e.g., high positive and low negative, average on both positive and negative risks), utilizing a person-centered approach can offer insight on identifying the unobserved groups and relevant predictors of unobserved group membership. To complement findings of variable-centered approaches, it will be especially helpful to explore how indicators of risk-taking behavior (both positive and negative risk) combine to create profiles of risk-taking and how certain factors relate differentially across different profiles.

In the current literature, only one study examined profiles of overall risk behaviors. Specifically, Black and Latin American college students' behavioral patterns in negative health risks (binge drinking, unsafe sex, and marijuana smoking) and positive prosocial risks (anti-racist action) and related predictors and outcomes between subgroups were explored (Duell et al., 2022). Three subgroups were found: High health risks (10%; those that engaged in average levels of anti-racist action and frequent health-risk behaviors), high anti-racism (11%; those that engaged in high levels of anti-racist behavior and low health risk behavior), and average group (79%; Duell et al., 2022). Further, Duell and colleagues (2022) reported that sociodemographic factors (year in school, GPA, age, gender, racial background) did not vary by group. However, greater perceived discrimination predicted belonging in the High Health Risk subgroup compared to the Average subgroup, which indicated that individuals experienced perceived discrimination were more likely to engage in greater negative health risk behaviors and average prosocial behavior (Duell et al., 2022).

Given previous research suggests that different profiles of risk-taking could be present during emerging adulthood, the present study will expand on Duell et al.'s (2022) study and encompass indices of both positive and negative risks. Further, individual characteristics (beliefs behind risk-taking, motives of well-being, and social influences) will be explored as correlates of profiles. Because research has not examined risk-taking profiles among Asian Americans, the proposed study will further the literature by examining risk-taking profiles among Asian Americans, a previously understudied population in risk-taking research. In addition, the present study will explore how cultural factors (individualistic/collectivistic orientation, Asian American values, and familial ethnic socialization) relate to risk-taking profiles.

Contextual Perspectives and Theories on Risk-taking

Bronfenbrenner's bio-ecological systems theory (Bronfenbrenner, 2005) highlights the interdependent and complex features of human development involving person-environment interactions that are nested in five levels: microsystem (e.g., immediate environment; family and friends), mesosystem (e.g., bidirectional influences between the microsystem and other systemic levels), exosystem (e.g., health care system, media), macrosystems (e.g., culture), and chronosystem (e.g., time). Although Bronfenbrenner situated culture in the macrosystem, some argue that culture should be embedded within everyday practices and is permeated in the immediate context (microsystem) for development (Velez-Agosto et al., 2017). Nonetheless, as human development is influenced by multiple factors, Bronfenbrenner (2005) encourages research to include multiple variables for a well-rounded understanding development. Because the role of nested network of interactions within multiple settings is underscored in Bronfenbrenner's ecological systems theory, it offers a framework for exploring potential correlates of both positive and negative risk-taking across levels of systems and identifying

subgroups. Within this study, the spheres of influence on risk-taking will mainly focus on the aspects of the micro and mesosystems, including individual characteristics, social influences of peers and parents, and macro-level influences of culture.

Prototype-Willingness Model

Among the various theories of risk-taking (see review Boyer, 2006), the prototype-willingness model (Gerrad et al., 2008) is particularly applicable because the model includes the role of individual motives and social factors in understanding risk-taking. The prototype-willingness model (Gerrad et al., 2008) is a dual-process model that suggests that there are two paths in relation to decision making. One is the reasoned path to risk-taking that involves intentions and motives. The second path is described to be less intentional and puts more emphasis on social cues or the context that encourages risky behavior (e.g., a party that has alcohol and drugs). Although the prototype-willingness model does not include positive risks in its theory, it is reasonable to propose that the decision-making process could apply to positive risks. Based on the model highlighting the critical role of values and social influences on risk-taking, the proposed study will explore whether beliefs, motives, and social influences correlate to membership of risk behavior profile.

Potential Correlates of Risk-taking Membership Profiles

Values and Risk-Taking

Scholars highlight the integral role of individual beliefs and motivations in understanding how and why risk behavior occur (Reyna & Farley, 2006; Zinn, 2015). For instance, one study reported that college students with more supportive attitudes toward environmental activism (form of positive risk) indicated greater intention to engage in active attempts to protect the environment (Fielding et al., 2008). In addition, a qualitative study that examined college

students' philosophy on taking maladaptive and adaptive risks identified themes related to taking risks: satisfaction, avoid missing out, achievement, and personal growth (Ravert & Gomez-Scott, 2015). Evidence from these studies suggest that individuals' reasoning behind risk-taking varies and could also vary by different risky behaviors. Two important values that are integral to risk-taking may be beliefs about risk-taking and well-being motivations because such motives are likely to be concerned with pleasure, fulfillment, and growth (Nelson, 2020; Stegar & Shin, 2012).

Beliefs behind risk-taking. Some research has classified beliefs of risky behavior into four categories: irresponsible, audience controlled, thrill-seeking, calculated intentions, and hedonistic beliefs (Kloep & Hendry, 1999; Kloep et al., 2009). Irresponsible beliefs refer to believing nothing bad can happen, whereas audience-controlled values included believing risky behaviors would lead to impressing others or that expectations of others wanted them to behave in a certain way. Thrill-seeking values referred to viewing risky behaviors as exciting and a way to assess one's abilities, and calculated intention beliefs embodied taking risks to achieve a certain future goal. The hedonistic belief was identified through exploratory factor analyses and reflects an additional component that consists of positive affect related to risk-taking (e.g., 'it is important to enjoy the present'; Kloep et al., 2009).

Among a mixed sample of Welsh and Turkish young adults (14-20 year olds), irresponsible and audience-controlled beliefs were positively related to delinquent behaviors, and irresponsible and hedonistic motives related to greater anti-authority risk-taking (e.g., cheating, defying an authority figure). On the other hand, calculated risk beliefs related to less likelihood of engaging in delinquent behavior and anti-authority risks, whereas hedonistic motives were related to greater social risks (though valence is not specified, items refer to positive risks such

as showing courage, organizing an event, public speaking; Kloep et al., 2009). These findings suggest that beliefs behind taking risks should not be ignored in risk-taking research, and that such factors play an important role in understanding why individuals expose themselves to take risks. Therefore, the proposed study will extend Kloep et al. (2007) research by investigating how such beliefs influence positive risks (in addition to negative risks), and additionally examine how they impact subgroups of overall risk-taking profiles.

Well-being motivations. Another critical value that may relate to positive and negative risk-taking could be well-being motives, which are critical drivers that allow individuals to achieve successful and meaningful lives. The well-being literature refers to four approaches that are established to impact the orientation of one's pursuit of life: a) eudaimonic motivations (e.g., seeking to live up to one's potential, finding meaning, seeking growth), b) hedonic pleasure motivation (e.g., seeking pleasure, positive affect, and fun), c) hedonic comfort motivation (e.g., seeking comfort, relaxation, no pain), and d) extrinsic motivation (e.g., seeking money, power, status, popularity; Huta, 2016; Huta & Waterman, 2014; LeFebvre & Huta, 2020). These motivations stem from reflective processes, are influenced by environmental factors, help make decisions and goals, and can eventually impact an emerging adult's drive to engage in behavior.

To date, though research has examined relationships between well-being motives and various psychosocial outcomes (e.g., Gentzler et al., 2021; Huta et al., 2012; Romm et al., 2021), only a few have investigated the associations between pursuits of well-being and overall risk-taking. Regarding negative risks, research with college students demonstrated that having both, greater eudaimonic and psychological well-being related with less likelihood of engaging illicit drug use behavior (marijuana, hard drug, injecting drug use) and greater psychological well-being also related to less health risk behavior, such as sexual risk behavior and riding with an

impaired driver (Schwartz et al., 2011). No work has examined the links between extrinsic values and risk-taking among emerging adults, but research with adolescents indicate that having greater popularity among peers relates to greater unspecified risk-taking activities (i.e., aggressive behavior, health risks, safety risks, risks related to strangers; Hawke & Rieger, 2013), and that greater extrinsic aspirations associated with greater engagement in health risk behaviors (Williams et al., 2000).

The relations between well-being motives and positive risks are understudied but some qualitative work indicates that various aspirations of well-being are not mutually exclusive. For example, Roth's (2014) work with adult aid workers (a form of positive risk-taking) explained that despite being aware of risks (e.g., health risks, security issues) aid workers were willing to tolerate risks due to both eudaimonic and hedonic pleasure motives, such that they were motivated to make a difference, hone personal growth, and experience other countries and cultures. Although none have examined the relations between extrinsic motivation and emerging adult risk-taking, individuals who endorse greater extrinsic motivations may be inclined to engage in greater positive risks (e.g., protests for climate change, voluntary acts) as they find the received attention attractive.

Taken together, the limited evidence suggests that beliefs and well-being motives are likely to be factors that relate to engaging in risky behavior among emerging adults. Given that some research indicates that links between motives and risk-taking are not exclusive (e.g., greater hedonic motives positively relate to both positive and negative risky behavior; Kloep et al., 2009; Roth, 2014), it is difficult to determine directional hypotheses. Despite mixed evidence, it is expected that having greater a) eudaimonic b) extrinsic motives, c) calculated risk beliefs and endorsing less d) hedonic comfort e) hedonic pleasure motives, f) thrill-seeking, g)

irresponsible beliefs, and h) audience-controlled beliefs will be associated with high positive/low negative risk profiles than profiles that have combinations of low positive/high negative or average risk-taking profiles.

Social influences and Risk-taking

The prototype willingness (Gerrad et al., 2008) and biopsychosocial models (Bronfenbrenner, 2005) highlight the role of social influences, especially parents and peers on one's development. Parents are considered to be driving forces of their child's socialization (Grusec, 2002). They often teach their children about safety and strategies to handle environmental stressors, which are likely to influence one's appraisal of risk, help seeking attitudes, intentions, or willingness to engage in risks, and prosocial behavior (Clark et al., 2015; Holt et al., 2018; Padilla-Walker et al., 2018).

Research on parental influence has often focused on adaptive aspects of parenting (e.g., parental support), but recent work raises attention to how other parenting constructs such as behavioral and psychological control influence negative risk-taking (Romm et al., 2020). Behavior control is a type of parental control, often used interchangeably as parental monitoring, that involves attempts to control a child's behavior through limit setting and having knowledge of child's behavior (Barber, 1996; Barber et al., 2005). On the other hand, psychological control refers to attempts to interfere with the child's emotional and psychological development and involves invalidating the child's feelings, inducing guilt, and controlling a child's thoughts (Barber, 1996). Research show that parents continue to apply control over their children even beyond adolescence (Chou & Chou, 2020; Padilla-Walker & Nelson, 2012) and impact emerging adults' psychological adjustment (Romm et al., 2020).

Behavioral control. As the absence of adequate parental regulation of child behavior is posed as a risk (Barber et al., 1994), the influence of parental behavioral control on negative risky behavior was generally found to be adaptive. For example, research demonstrates that the lack of parental monitoring (having knowledge) serves as both a cross-sectional and longitudinal predictor of greater delinquency (early parental control reported during adolescence) and negative health risk behavior among college students (Harris-McKoy & Cui, 2012; Padilla-Walker et al., 2019). In addition, research on parental monitoring with emerging adults showed that greater perceived maternal knowledge related to less drinking and paternal knowledge related to less drug use and sexual partners (though marginally significant), over and above the influence of parental closeness; Padilla-Walker et al., 2008). Furthermore, a 5-year longitudinal study demonstrated that parental monitoring related to being less influenced by deviant peers at age 18, which in turn predicted reduced harmful drinking at age 19 (Pesola et al., 2015). However, socio-demographics played a role such that parental behavioral control was positively predictive of change in risk behaviors (i.e., greater problematic risky actions) among higher SES emerging adults, but not for lower SES counterparts (Romm et al., 2020).

Psychological control. On the other hand, links between psychological control and risky actions appears to be negative. For example, parental psychological control negatively related to overall US emerging adults' adjustment (health related risky behavior, life satisfaction; Faherty et al., 2020) and was related to greater change in negative risky behavior (Romm et al., 2020). Faherty and colleagues (2020) also indicated that greater parental psychological control was related to greater risky behavior among emerging adults through low self-esteem. Interestingly, parental behavioral control was not a significant predictor of risky behavior over and above

psychological control (Romm et al., 2020). Therefore, the reviewed work suggests that different aspects of parental control play a role in emerging adults' negative risky behavior.

No studies have examined the relation between aspects of parental control and positive risky actions. Given that evidence suggest that parents continue to have an impact on emerging adults' engagement in risky behavior, it is expected that various parenting strategies could further influence positive risky behavior. In relation to the impact of parental influence on risk-taking subgroups, it is expected that greater parental behavioral control and less psychological control would be associated with the high positive/low negative risk profiles than profiles that have combinations of low positive/high negative or average risk-taking groups.

Peers and risk-taking

Peers also model or offer information on which behaviors are accepted and appropriate in a given social context, which in turn may lead to reinforcing or engaging in behaviors (Borsari & Carey, 2001; Gerrad et al., 2008). Work with peer influence on negative risky behavior has occasionally been associated with negative connotations (e.g., Shin & Ismail, 2014), but recent research also acknowledges the positive influence of peers, in risky behavior (e.g., peers may encourage adaptative risky behavior, such as having courage or engaging in positive risks (van Hoorn et al., 2016). Interestingly, Stone and Allgaier's (2008) social values theory brings up an interesting idea that suggests that when people offer help in conducting risk-taking decisions for *others*, people are more likely to encourage engaging in socially valued risks that follow norms of the society. On the other hand, the theory suggests that risk-taking is less valued in situations that only involve the individual. With hypothetical vignettes that involved physical risks (e.g., public health scenarios that include avian flu), Stone and colleagues (2013) reported that individuals make more risk averse decisions for others but made less risk averse decisions for

themselves. Such evidence highlight that the influence of peers can impact one's engagement in risky behavior through encouraging social norms that are embedded at the society level.

Therefore, the current study will examine the role of two peer factors such as peer support and peer affiliation on both forms of risk-taking.

Peer support. Though an important source of support during emerging adulthood includes the social connections provided through peers, the influence of peers on emerging adults' risky behavior have been rarely studied.

Furthermore, existing research on adolescent samples have often utilized behavioral tasks and show mixed findings. Some indicate that peer support buffers the likelihood of engaging in negative risky behavior while others suggest that peer support enhances one's engagement in risky behavior. For example, Gardner and Steinberg (2005) demonstrated that adolescents and emerging adults were more susceptible to peer presence than adults on the self-reported risky decision-making (hypothetical negative risky scenarios) and experimental unspecified risk-taking propensity measure (i.e., stoplight game). Reynolds and colleagues (2014) extended Gardner and Steinberg's work with emerging adults (18- 20 year olds) and demonstrated that peers' direct *encouragement to engage in risky tasks* predicted greater unspecified risk-taking propensity, whereas peer presence was unrelated to risk-taking. Aligning with experimental methods, some self-reported studies that included valence of risk-taking, found that greater peer support related to greater substance use and risk-taking among adolescents (Piko, 2000; Wills et al., 2004). But others indicated that greater peer support predicted lower negative risk-taking behavior among teens (Telzer et al., 2015) with a 2-year daily diary methods longitudinal study. Although the contradicting findings make it difficult to predict the associations between peer support and negative risky actions, it is speculated that those who report greater perceived peer support will

engage in less negative risky behavior as they may experience greater social connection and have resources to reduce levels of stress (Cohen et al., 2001).

In relation to positive risks, very few studies have attempted to assess how peer support impact positive risk-taking among emerging adults. One study showed a positive association between peer support on prosocial behavior among Chinese emerging adults (Lan & Wang, 2019). Among adolescent samples, research reported that positive direct peer pressure and positive indirect peer association (e.g., values and interests of friends) were associated with increased positive behavior (e.g., social initiative; Padilla-Walker & Bean, 2008). Thus, the evidence suggests that peer support may have adaptive influences on positive risks.

Peers' engagement in risky behavior. Similarities between peer groups, which could be due to selection or socialization effects can be an important factor that explains risky behavior. In addition, the social values theory (Stone & Allgaier, 2008) argues that the influence of peers on individual's risk-taking behavior can depend on how one perceives their peers' values. For example, if the individual believes that their peers approve of taking positive risks, then the individual would more likely engage in positive risks. Aligning with this theory, peer groups may be offering risk-facilitating or risk-aversive messages that can affect one's decision to engage in either a positive or negative risky behavior. Various studies indicate that greater perceived peer participation related to greater negative risky behavior among college students (Rolison & Scherman, 2003).

Interestingly, recent work with young adults (13 to 20 year olds) demonstrated that negative peer environments surprisingly related to both greater positive and negative risk-taking (Patterson et al., 2022). On the other hand, some studies found that positive role models and positive peer environments are likely to have adaptive influences on negative risk-taking, such as

alcohol consumption among adolescents, reducing the likelihood of engaging in delinquent behavior, and negative risks (Oman et al., 2004; Padilla-Walker & Bean, 2008; Patterson et al., 2019). Furthermore, perceived positive peer environment associated with greater positive risk-taking (Patterson et al., 2019). Therefore, evidence suggests that positive and negative risk-taking continue to be influenced by peer contexts during emerging adulthood, and further implies that peer support could play a role in encouraging positive risks and discouraging negative risks, in line with the social values theory (Stone & Allgaier, 2008).

The limited evidence on peer influences on emerging adults' overall risky behavior call for a need to better understand how social support of peers impact risky actions among college students. Thus, in the present study, two peer factors (i.e., peer support and peers' engagement in risky behaviors) will be explored. It is expected that having greater peer support and greater peer engagement in positive risk actions will be associated with the likelihood to be in the high positive/low negative risk profiles.

Culture and Risk-taking

Cultural differences in risk-taking behavior are expected because cultures have varying beliefs, behavioral, and value patterns that persist through generational transmission (Hajdu & Hajdu, 2016). The reasoning behind taking risks or the degree of riskiness can particularly depend on the norms and principles that are embedded in sociocultural values of a particular group (Tulloch, 2008; Zinn, 2008). The predictive role of culture in risk-taking research is limited because culture is often reduced to variables (e.g., ethnicity, nationality) and few have actually assessed cultural factors. Only one longitudinal study that examined cultural factors (familism values) among Mexican-origin youth reported that familism (e.g., obligation, referent) lowered the chance of engaging in negative risk behavior (Wheeler et al., 2017). To better

understand the role of culture in psychological experience and overall risk-taking profiles, obtaining measurements of cultural factors (values, beliefs) are needed (Mahalingam & Rabelo, 2013). Thus, the final aim of the current study will examine whether risk-taking profiles differ among Asian and non-Asian American emerging adults and further explore whether cultural factors (individualistic vs. collectivistic orientation, Asian American/European American values, and familial ethnic socialization) account for potential group differences in sub-profiles.

Asian American values. Particularly relevant to this study, is Asian culture, which encompasses various values among the Asian American population. The Asian Eastern American community includes people of whom have immigrated from Asian countries (e.g., Vietnam, Korea, Hmong, Bangladeshi, Japan) to America. Asian Americans generally share a set of shared values that stem from the Eastern world view (e.g., Confucianism), which comprise collectivistic values such as family ties, emphasis on education, respect for authority and the elderly (Chen, 2002; Kim et al., 1999). Individuals higher on Asian American values may be less inclined to engage in negative risky behavior as they may consider potential outcomes of bringing shame to the family or harming familial relationships. On the other hand, individuals higher on Asian American values may engage in greater positive risky behavior as they may potentially consider the outcome of family recognition to achievement and prioritize the collective well-being.

Surprisingly, only a single study examined the influence of Asian American values on substance use behavior (i.e., negative risk) among Asian American college sample (only men) and unexpectedly found no significant direct relations (Liu & Iwamoto, 2007). Although Liu and Iwamoto (2007) suggested the lack of relationship could be due to being acculturated to the American culture, there appears to be no valid measure that assesses Western American cultures.

Given that their study only included males, their findings are limited. The proposed study will further explore whether Asian American values impact overall risk-taking.

Individualistic/collectivistic orientation. A potential cultural factor that has been often examined with various developmental outcomes is the individualistic and collectivistic orientation. The individualistic orientation has a greater focus on the self, being unique, personal goals rather than social goals, and resisting pressure to conform to norms of groups (Cozma, 2011). In contrast, the collectivistic orientation has a more interdependent view of the self, places greater focus on group values and membership, and consider the familial and social obligations to benefit collective well-being. There is evidence that suggests cultural orientations impact behavioral differences such as environmental behavior (Cho et al., 2013; McCarty & Shrum, 2001), self-control (Li et al., 2018), and emotional experiences (Bhullar et al., 2012; Rego & Cunha, 2009; Stipek, 1998).

Only a few studies have investigated the relations between individualistic/collectivistic orientation and negative risky behavior. Schwartz and colleagues (2011) reported that collectivistic values were negatively associated to various health risk behaviors among a diverse US immigrant college sample (White, Black, Hispanic, and East Asian). Specifically, for East Asian college students, collectivistic values were inversely related to sexual risk-taking. Interestingly, their study indicated that heritage cultural practices (e.g., watching TV shows of one's ethnic group) were related to risky behavior of East or South Asians, but were protective for other White and Black participants. In addition, a study examined how individualism-collectivism values related with sexual risk-taking among gay Asian and White men in Australia showed with the pooled sample that being higher on the collectivistic orientation of family values related to lower sexual risk-taking, and that White gay men had lower likelihood to

engage in risky sexual behavior if they endorsed greater value of harmony with close friends (collectivistic value; Mao et al., 2004).

Although no studies have examined the association between individualistic/collectivistic orientation and positive risk-taking, evidence from relations between cultural orientations and prosocial behavior can be relevant. In general, stronger positive relations between collectivistic and prosocial behavior are generally reported (Feygina & Henry, 2015), such as longitudinal links between the two constructs among Latinx Americans (Davis et al., 2018). However, research also indicates that individualism can promote prosocial behavior. For example, work with Greek emerging adults indicated that being higher on collectivistic orientation related to overall greater prosocial behavior and that greater endorsement of individualistic orientation only associated with greater public prosocial behavior tendencies (Lampridis & Papastylianaou, 2014). In addition, Padilla-Walker and colleagues (2022) reported that emerging adults who were higher on vertical/horizontal collectivism *and* higher on the horizontal individualism (e.g., greater willingness to be autonomous while also valuing equal status among others) engaged in greater prosocial behavior during the COVID-19 pandemic.

The limited empirical evidence makes it difficult to make directional hypotheses, but evidence suggests that one's orientation toward individualistic/collectivistic values can play a role in both negative and positive risk-taking. It is expected that being higher on the individualistic orientation may increase the likelihood of being in a greater negative risk-taking profile, whereas being higher on the collectivistic orientation relates to being a member of subgroup that engages in more positive risk-taking than negative risks.

Ethnic socialization. Another important cultural factor that may influence emerging adults' risk-taking behavior can be how parents socialize ethnic values to their children (de

Guzman et al., 2014; Umaña-Taylor et al., 2009). The process of familial ethnic socialization embodies how family members teach values, history, and behaviors related to their ethnicity to their children (Rombaut, 1994). Studies with minoritized youth and emerging adults (mostly Latinx and Asian American) have demonstrated associations between cultural socialization patterns and depressive symptoms, self-esteem (Umaña-Taylor et al., 2014), and ethnic identity (Gartner et al., 2014). Furthermore, racial socialization has been reported to mitigate the effects of perceived discrimination on substance use (Neblett Jr. et al., 2010) and delinquent behavior (Kwon et al., 2022). Familial ethnic socialization among White Americans is rarely studied but a few studies indicate that White American parents do engage in familial ethnic socialization, but to a lesser extent than other ethnic groups (Williams & Banerjee, 2021; Zucker et al., 2018).

In general, the relations between familial ethnic socialization and positive risk-taking behavior are understudied. In relation to prosocial behavior, one study did report that parental socialization practices related to greater prosocial behavior among Latinx emerging adults (de Guzman et al., 2012). Given that all US families regardless of race likely teach and transmit cultural messages to their children, the proposed study will be the first explore whether familial ethnic socialization may promote positive risk-taking or discourage negative risk-taking in both Asian and non-Asian American emerging adults.

The role of gender. Another potential factor that is likely to be relevant to overall risk-taking is gender. Studies on decision-making report that women are more likely to endorse an interpersonally-oriented decision making style than men due to various factors such as socialization sources (Delaney et al., 2015). Gilligan (1982) posits that women engage in moral actions due to values of care, relationships, and responsibility, which can also contribute to manifestation of gender roles and in turn impact risky behaviors of individuals. Aligning with

such perspectives, Rolison and colleagues (2014) found that women engaged in greater social risk-taking than men. Despite theoretical expectations on gender differences in risk-taking, a meta-analysis reported that though men engaged in greater risk-taking, gender differences varied by type of risk (e.g., greater difference for physical and intellectual risk-taking than health risk; Byrnes et al., 1999).

The literature also notes that cultural and gender values are interrelated in relation to one's self-conception. According to some theoretical perspectives (Delaney et al., 2015; Gilligan, 1982), construal of the self can differ by gender (women may have relational self-construal dimensions than men) and by culture (collectivistic cultures may have more interdependent self-construal dimensions than individualistic cultures; Gudykunst et al., 1996). In line with some research, women were found to be more relational than men regardless cultural background among US, Australia, Japan, Korea, and Hawaii college samples (Kashima et al., 1995) and among Japanese and Australian college students (Kashima et al., 2004). However, Kashima and colleagues (1995) indicated that the association between relational dimension (self-construal) and cultural orientation (collectivistic/individualistic) did not vary by gender, which was in line with Bochner's (1994) work with Malaysian, Australian, and British adults. Therefore, the current evidence implies that cultural and gender are likely to influence risk-taking separately.

The Present Study

The present study (1) utilized a person-centered approach to identify subgroups of risk-taking behavior among Asian and non-Asian American college students, (2) examined correlates associated to risk-taking profiles, and (3) explored cultural differences among Asian and non-Asian American emerging adults' risk-taking profiles.

Research Questions and Hypotheses

Research Question 1: *What are the profiles of risk-taking behavior in an emerging adulthood sample?*

Hypothesis 1: Based on Duell et al. (2022), it was expected that at least 3 groups would manifest: a) Average on both negative and positive risk, b) High negative and low positive risk, c) Low negative risk and high positive risk.

Research Question 2: *How do correlates (beliefs behind risk-taking, well-being motives, peer and parental factors) relate to profiles of risk-taking groups?*

Hypotheses 2a (cognitive factors): Higher positive/low negative risk profile was expected to be associated with more 1) eudaimonic motives, 2) extrinsic motives, 3) calculated intention beliefs and less 4) hedonic comfort and pleasure motives, 5) thrill-seeking beliefs, 6) irresponsible beliefs, and 7) audience-controlled beliefs than profiles that have combinations of low positive/high negative and average risk-taking profiles.

Hypotheses 2b (peer and parental factors): Higher positive/low negative risk profile was expected to be associated with greater 1) peer support 2) greater peer engagement in positive risky actions 3) perceived parental behavioral control and less psychological control than profiles that have combinations of low positive/high negative and average risk-taking profiles.

Research Question 3: *Do the prevalence (size) of risk-taking profiles differ among Asian and non-Asian American samples?*

Hypotheses 3a: It was expected that risk-taking profiles would differ between Asian and non-Asian American ethnic group membership. Though exploratory, for non-Asian American emerging adults, it was hypothesized that there will be a larger proportion of average

positive/negative risk profiles, whereas for Asian American emerging adults, it was hypothesized that there will be larger proportion of high positive/low negative risk profiles.

Hypotheses 3b (cultural factors): It was expected that the proportional differences between Asian and non-Asian American college students would be due to different cultural predictors. Specifically, the reasons that Asian American college students were expected to be more prevalent in a high positive/low negative risk profile was because they were expected to endorse higher 1) collectivism orientation 2) Asian American values 3) familial ethnic socialization than non-Asian American college students. In contrast, non-Asian American college students were expected to more often fall into the average positive/negative risk profiles due to greater endorsement (compared to Asian American college students) of individualistic orientation and less endorsement of Asian American values and familial ethnic socialization.

Method

Participants

Undergraduate students were recruited from the local university (West Virginia University) and other universities (e.g., University of Houston, University of Georgia, Pennsylvania State University, University of California-Davis, Virginia Tech, and University of Pittsburgh) to better recruit Asian American participants. The following schools were selected based on being classified as a Carnegie R1 institution, state schools, and demographic trends (e.g., University of Houston reports 20% of the undergraduate students to identify themselves as Asian Americans). Monte-Carlo simulations were attempted with Mplus (Muthén & Muthén, 1998–2010), based on suggestions by Tein et al. (2013) to determine sample size for adequate power for latent profile analyses. However, due to the lack of knowledge of population parameter estimates (Spurk et al., 2020), the a priori sample size was based on previous

published studies that included 346-500 participants (Duell et al., 2022; Spurk et al., 2020). The proposed study expected to recruit approximately 400 participants.

Procedure

After receiving approval through the university's IRB, recruitment was conducted through multiple sites. Participants from West Virginia University were recruited through the SONA participant pool. Additional students were recruited via contacting various WVU student associations (e.g., Bangladeshi, Indian, Asian American student associations). To recruit more Asian American emerging adults, the research team contacted the Asian/Asian Americans student associations at selected schools and asked if they could distribute flyers to members of the associations. The flyer included a brief description of the study, the direct Qualtrics link, and QR code. Participants were asked to complete the informed consent form. After assenting to participate, the participants completed survey measures on Qualtrics using their own electronic device. Completion of surveys was expected to be 30-35 minutes. Upon completion, participants who were recruited through the WVU SONA pool received extra credit for their respective psychology class, and those who were recruited through WVU student associations and from other schools were compensated a \$15 Amazon.com gift card for completing the survey.

Measures

Demographics. Consented participants completed demographic questionnaires regarding their race/ethnicity, nationality origin (foreign born or US born), country of birth of parents and grandparents (foreign born or US born), date of birth, gender, school, year in school, religion, and socioeconomic status (SES). For participants that identified as Asian American, an additional item asked to specify the Asian heritage group ethnic they endorsed. Generation status was assigned based on nationality origin of the participant and nationality origin of parents and

grandparents. Based on recommendations (Yoshikawa et al., 2016), first-generation immigrants were individuals who were born outside of the US, whereas second generation immigrants were individuals who answered being born in the US with at least one foreign born parent. Third generation immigrants identified being born in the US with at least one foreign born grandparent.

SES status was reported through the MacArthur Scale of Subjective Social Status (SES ladder; Goodmand et al., 2001), in which participants rated where they perceived themselves to stand on a 1-10 scale (higher numbers represented individuals with respectable jobs, good education, and earning the most money). Religion tradition was reported through the Baylor Religions Survey (Bader et al., 2005), and religiosity was measured with one item (Duke University Religion Index; Koenig et al., 2010; “How often do you attend church or other religious meetings?”).

Indicators

Positive risk-taking. (Appendix A). The Positive Risk-Taking scale was originally developed by Duell and Steinberg (2020) for adolescents. To assess positive risk-taking in emerging adults, an adapted version for adults of the measure (Fryt et al., 2022) was used because opportunities for risk can vary by age. The 14-item adapted version modified four items to be applicable to an adult population. Some examples of the modified items were “Applied for a job, project or participated in a competition when you were not sure you would be selected” “Started learning something that you knew nothing about or that seemed challenging.” Although the original scale utilized a 4-point scale, the adapted version used a 5-point scale and changed the original frequency wording (e.g., *none* to *more than 5 times*) to a response format of “1 = *never*” to “5 = *very often*.” Scores were summed into a frequency score and higher scores

indicated greater positive-risk-taking. The scale had good reliability (.81), which is similar with other studies (e.g., Fryt et al. 2022; $\alpha = .83$).

Negative risk-taking (Appendix A). Negative risk-taking was measured with the Negative Risk-Taking Scale (NRTS; Fryt et al., 2021). The scale assesses how often emerging adults engaged in 22 risky behaviors over the 6 months. Responses were rated on a 5-point scale (1 = *never* to 5 = *very often*). Example items include “Driving without a license”, “Gambling”. Previous work indicates good reliability, $\alpha = .82$ (Fryt et al., 2022). Fryt et al (2022) note that there are two distinct subscales that include health behaviors (3 items) and anti-social behaviors (4 items), but report that sum of all items are calculated into total scores. Higher scores represented greater frequency of negative risk-taking. The scale had good reliability evidence, $\alpha = .80$.

Predictors

Well-being motivations. (Appendix A). Well-being motivations were measured with the Hedonic, Eudaimonic, and Extrinsic Motives for Activities scale. The measure is an adapted version of the Hedonic and Eudaimonic Motives for Activities scale (HEEMA; Huta, 2016; LeFebvre & Huta, 2020), and includes a subscale for extrinsic motives. Four subscales for well-being motivations were included: hedonic comfort, hedonic pleasure, eudaimonic, and extrinsic. Three items each assessed hedonic comfort (e.g., “seeking to take it easy?”) and pleasure (e.g., “seeking to have fun?”). Five items each measured eudaimonic (e.g., “seeking to contribute to others or the world?”) and extrinsic (e.g., “seeking prestige to take it easy?”) motivation. Each item was assessed on a 7-point Likert scale (1= *not at all* to 7 = *very much*). Reliabilities for each subscale revealed good reliability, $\alpha_{\text{eud}} = .86$, $\alpha_{\text{hed-comfort}} = .78$, $\alpha_{\text{hed-pleasure}} = .80$ $\alpha_{\text{extrinsic}} = .88$.

Beliefs behind risk-taking. Beliefs behind risk-taking were measured with the 26-item motives for Risk-taking scale (Kloep et al., 2009). The measure included five subscales: thrill seeking (4 items), audience controlled (6 items), irresponsible (7 items), hedonistic (5 items) and calculated risk behavior (4 items). Example items for audience controlled were “This way I can impress others” and “Others expect me to behave like that.” An example item of irresponsible motive was “I don’t worry much about the future consequences of my behavior.” An example item for calculated motive was “I want to achieve goals that can lead to future successes.” All subscales indicated good reliability for the study: audience controlled ($\alpha = .83$), irresponsible ($\alpha = .78$), thrill seeking ($\alpha = .79$), hedonistic risk-taking ($\alpha = .78$), and calculated risks ($\alpha = .78$).

Peer support. (Appendix A). Perceived peer support were measured with selected items from the response-based coping inventory (Wills, 1986). The survey included four items that assessed the extent of which individuals sought help from a close friend. An example item was “I get sympathy and understanding from a friend.” Items were rated on a 5-Likert scale (1 = *never* to 5 = *always*). The scale had good reliability ($\alpha = .94$).

Peer endorsement of risky behavior (Appendix A). The positive and negative risk-taking scales (Fryt et al., 2011; 2022) were adapted to measure peer endorsement of risky behavior. The same items were used for the positive and negative risky behavior scales, but a slight modification was made to the overall question. The slight modification resulted in asking emerging adults to rate how often their close friend engaged in each risky behavior over the six months: “Here is a list of different things *your close friend* may have done at some time in the past. For each one, please indicate whether *your close friend* has ever done it, and, if so, how many times *your close friend* has done it in the past 6 months.” The items were rated on 5-likert

scale (1 = *never*, 5 = *very often*). The scales showed good reliability $\alpha_{\text{peer positive risk-taking}} = .84$; $\alpha_{\text{peer negative risk-taking}} = .88$.

Parental behavioral control (Appendix A). Parental behavioral control were assessed with five items that measure emerging adults' perceptions of mothers and fathers' having knowledge of their child's behavior in domains of friends, money, or activities (Kerr & Stattin, 2000). Items were rated on a 5-likert scale (1 = *not at all like him/her* to 5 = *a lot like him/her*). Some example items include "My mother/father tries to set rules about what I do with my free time" and "My mother/father tries to tell me what I can and can't do on nights and weekends." Though previous work indicated good reliability with emerging adults ($\alpha_{\text{mother}} = .84-.86$, $\alpha_{\text{father}} = .88-.89$; Romm et al., 2020), the scales had moderate reliabilities in the present study ($\alpha_{\text{mother}} = .65$, $\alpha_{\text{father}} = .71$).

Parental psychological control (Appendix A). Parental psychological control was assessed with the 16-item Psychological Control Scale (Barber, 1996). Participants responded on a 3-likert scale that ranges from 1 = *not like him/her* to 3 = *a lot like him/her*. Some example items were "My mother/father changes the subject, whenever I have something to say" and "My mother/father acts like they know what I'm thinking or feeling." The measures showed good reliability, $\alpha_{\text{mother}} = .93$, $\alpha_{\text{father}} = .94$.

Individualistic/collectivistic orientation (Appendix A). The 16-item Horizontal and Vertical Individualism Collectivism Scale (Triandis & Gelfand, 1998) was used to assess individualistic and collectivistic cultural orientations. Although the measure includes four subscales: Horizontal Collectivism, Horizontal Individualistic, Vertical Collectivism, Vertical Individualistic, the two horizontal and vertical subscales was collapsed into individualistic and collectivistic construct based on prior research (e.g., Choi, 2002) and work suggesting

measurement invariance within the vertical and horizontal distinction (Li & Aksoy, 2007). An example item of the individualistic orientation is “My personal identity independent of others, is very important to me.” An example item of the collectivistic orientation is “It is my duty to take care of my family, even when I have to sacrifice what I want.” In the present study, the reliabilities were $\alpha_{\text{individualistic}} = .81$; $\alpha_{\text{collectivistic}} = .81$ ($\alpha_{\text{Asian Americans IND}} = .79$; $\alpha_{\text{Asian Americans COL}} = .84$, $\alpha_{\text{non-Asian Americans IND}} = .83$; $\alpha_{\text{non-Asian Americans COL}} = .84$).

Asian American values (Appendix A). Adherence to cultural values of various Asian American ethnic groups were measured with the 42-item Asian American Values Scale-Multidimensional; AAVS-M; Kim et al., 2005). Example items included “It’s one’s duty to bring praise through achievement to one’s family” “Succeeding occupationally is an important way of making one’s family proud.” Items were rated on 7-Likert scales from 1 (strongly disagree) to 7 (strongly agree) on five subscales: Conformity to norms (7 items), Family recognition through achievement (14 items), Emotional self-control (8 items), Collectivism (7 items), and Humility (6 items). The subscales were aggregated together to indicate whether the individual has greater Asian American values. Previous research indicated good reliability for all subscales among Asian and European American college students (Asian Americans $\alpha = .71-.87$; European Americans: $\alpha = .72-.87$; Park & Kim, 2008). Reliabilities were high for the present study: $\alpha_{\text{total sample}} = .91$; $\alpha_{\text{Asian Americans}} = .90$; $\alpha_{\text{Non-Asian Americans}} = .89$).

Familial ethnic socialization. (Appendix A). The 12-item Familial Ethnic Socialization Measure (FESM; Umana-Taylor et al., 2004) was used to assess individual’s perception of how they the perceive their families socialize them with regards to their ethnicity. Two example items were “My family teaches me about the history of my ethnic/cultural background” and “My family celebrates holidays that are specific to my ethnic/cultural background.” Items were rated

on a 5-Likert scale (1 = not at all to 5 = very much). The scales indicated good reliability $\alpha_{\text{total sample}} = .83$; $\alpha_{\text{Asian Americans}} = .92$; $\alpha_{\text{Non-Asian Americans}} = .93$).

Results

Preliminary Analyses

Prior to analysis, the variables in the study were examined for eligibility of participants, validity of participants' responses, missing data, outliers, and normality. Of the original 538 participants, 16 participants who identified as graduate students were excluded due to not meeting the eligibility criteria (i.e., being an undergraduate student, being older than 18 year old). Among the remaining participants, those who completed 25% or less of the survey ($n = 88$) were removed from all analyses given the vast amount of missing data on key study variables. A total of 27 participants were excluded due to failing validity checks (i.e., failed at greater than two validity questions out of the four), which resulted in 407 participants. For missingness, the Little's Missing Completely at Random (MCAR) test was used. Results indicated that data was not MCAR; $\chi^2 = 746.20$, $df = 653$, $p = .01$. All variables had low missingness ($< 5\%$), the measures of behavioral and psychological control of fathers showed highest missingness (both 3.9%). The missing data was due to participants not reporting on parental measures (often the father) because the participants may not have parental figures in their lives. Because the missing data pattern was predictable, the observed data was assigned as missing at random (MAR) (Perkins et al., 2018). Scale scores for all measures were calculated if participants answered 80% of items of the variables that go into each score.

Several outliers were found among the variables of positive risk-taking, irresponsible beliefs, and Asian American values. In accordance with winsorizing procedure (Kwak & Kim, 2017), the two outliers for positive risk-taking were winsorized and replaced with the next

highest score of 4.71 at *.57 SD*. Two outliers were found for the Asian American values measure and were winsorized and replaced with the next highest score of 6.07 at *.72 SD*. One outlier of Irresponsible Beliefs was winsorized into 3.43 at *5.12 SD*.

Analysis of univariate and bivariate issues showed that several key variables were skewed and kurtotic (see Table 5). Although variables were transformed all untransformed data were used in the LPA models because it would be impossible to interpret results if certain variables were transformed whereas others were not (see Appendix B for explanation of transformation procedures). To account for non-normality, the maximum likelihood estimation with robust standard errors (MLR) estimation was applied in LPA analyses because MRL is robust against non-normal data (Muthén & Asparouhov, 2002). Homoscedasticity issues were not found among the variables.

Mahalanobis distance was calculated with 19 variables (i.e., all predictor variables) to identify multivariate outliers. Six multivariate outliers were determined by mahalanobis distance values which were more than critical value of $\chi^2 = 42.31$, $df = 18$ $p = .001$ (Tabachnick & Fidell, 2007). The multivariate outliers were excluded from all models, which resulted in the final sample being 401 participants.

Descriptive statistics of key study variables are reported in Tables 1-4. Correlations are reported in Tables 6-7. The correlations between positive and negative risk-taking were significant for the combined sample ($r = .13$, $p < .001$) and Asian American ($r = .17$, $p = .02$) but marginally significant for Non-Asian Americans ($r = .13$, $p = .07$). The correlation findings suggest that positive and negative risk-taking were positively correlated but not highly correlated, suggesting people vary in how they report each type. In relation to associations between demographic and indicator variables (positive and negative risk-taking), a combination

of independent t-tests, one-way ANOVAs, and correlations were conducted. For the combined sample, females reported lower positive risk-taking scores ($M = 3.03$, $SD = .57$) than males ($M = 3.21$, $SD = .57$), $t_{396} = 2.81$, $p = .003$). No significant difference was found in negative risk-taking scores, $t_{395} = 1.16$, $p = .12$. One-way ANOVAs were conducted to examine mean differences among academic class and risk-taking outcomes (i.e., positive and negative risk-taking). Results indicated there were no statistically significant mean differences in positive risk-taking across academic class standings (e.g., freshman, sophomore, junior, senior; Positive Risk-taking: $F(3,396) = 2.07$, $p = .10$, nor for negative risk-taking and academic class standings ($F(3, 395) = .52$, $p = .67$). However, greater attendance to religious meeting related with less negative risk-taking ($r = -.23$, $p < .001$).

T-tests, correlations, and ANOVAs were also conducted separately with each ethnic group. Among Asian American emerging adults, females reported lower positive risk-taking scores ($M = 3.00$, $SD = .48$) than males ($M = 3.23$, $SD = .56$), $t_{198} = 3.02$, $p = .001$. Similarly, Asian American females ($M = 1.31$, $SD = .21$) reported lower negative risk-taking than males ($M = 1.39$, $SD = .29$; $t_{198} = 2.08$, $p = .02$). Results from one-way ANOVAs indicated that there were no significant differences in both positive and negative risk-taking between generation status and academic standing years for the Asian American group. On the other hand, among Non-Asians American emerging adults, there were no significant differences in positive ($t_{196} = .84$, $p = .20$) and negative risk-taking ($t_{44.22} = 1.41$, $p = .08$) between male and females. One-way ANOVA indicated there were no statistically significant differences in positive risk-taking between generation statuses or academic standing years. In addition, among Non-Asian Americans, only religious meeting related negatively with negative risk-taking ($r = -.27$, $p < .001$).

Intraclass correlations were examined for each outcome variable (positive risk-taking and negative risk-taking) to account for variability caused by schools (e.g., different environmental influences could have impacted opportunities to engage in overall risky behavior). The design effect sizes were lower than 2.5 for positive risk-taking and negative risk-taking, which suggests that there were no clustering effects among schools (Azam et al., 2021).

Preliminary analyses were conducted to examine measurement invariance among ethnic groups (Asian American versus Non-Asian American emerging adults). Four models were conducted in Mplus: 1) unconstrained model; 2) equal means across groups; 3) equal means and variances across groups; and 4) equal means, variances, and class size across groups. Commonly used information criteria statistics, such as BIC and aBIC were used to assess model fit, where lower values indicate better fit (Olivera-Aguilar & Rikoon, 2018). Fit indices of BIC and aBIC decreased across more constrained models (see Table 9), with the lowest values for the models with equal means and variances across groups (model 3) and equal, means, variances, and class size across groups (model 4). These models indicate that measurement invariance was demonstrated, suggesting that positive and negative risk-taking items operated similarly, in terms of means, variances, and class sizes, for both Asian and Non-Asian American emerging adults.

Primary Analyses

Profile Identification (RQ 1). A latent profile analysis was conducted using Mplus Version 8.7 (Muthén & Muthén, 1998-2017) to identify group patterns of overall risk-taking with two indicators (positive risk-taking and negative risk-taking). A combination of fit indices (AIC, BIC, aBIC, Entropy, LRT, adjusted LRT, and adequate class size) was utilized to distinguish the optimal number of profiles between 1 and 5 profile solutions. As the number of extracted profiles increased (2 to 3, 4, and 5), both AIC and aBIC decreased. Among the

extracted profiles, the 4-profile solution seemed to be the best fit to the data. Specifically, for the 3-profile solution, AIC, BIC, and aBIC continued to decrease and the smallest class size was adequate (i.e., 6.00%; Ferguson et al., 2020). However, the LRT-test suggested that the 3-profile solution was not significantly better than the 2-profile solution ($p = .05$; see Table 8). On the other hand, the four-profile model had the lowest AIC and aBIC and highest entropy (Ferguson et al., 2020). The entropy value (.78), which indicates the precision of classifying cases into the latent profiles at an acceptable level of certainty was adequate (Muthén, 2004; Jung & Wickrama, 2008), though the optimum value of .80 was not met (Clark & Muthén, 2009). As entropy is often used to assess the distance between latent classes/profiles in LCA/LPA (Kaplan & Keller, 2011), entropy values also represent the effect size. In addition, the Lo-Mendel Rubin Adjusted Likelihood Ratio Test (LRT-test) and adjusted LRT-test were significant, which indicated that profile-solution of 4 profiles offered a significantly better fit than profile-solution of 3 profiles (Ferguson et al., 2020). The LMR was not significant for Model 5, which suggested that the Model 4 was a better fit than Model 5 (see Table 8). Furthermore, the smallest profile size in Model 4 (i.e., 3.18%) comprised more than 1% of the sample, which is acceptable and consistent with previously published studies (Ferguson et al., 2020; Spurk et al., 2020). Overall, based on the multiple fit indices (lower criterion indices, greater entropy values, significant LRT; Nylund et al., 2007), the 4-profile solution was retained to be the best-fitting solution (see Table 8).

Because LPA models utilize maximum likelihood estimation, mixture models can be prone to local likelihood maxima (i.e., log likelihood value not reaching the highest peak), which could result in invalid results (Masyn, 2013). To consider the possibility of local maxima, the default settings in Mplus were increased and set to the random starts to 7000 and final stage

optimizations were increased by 200, based on recommendations of Hipp and Bauer (2006). The estimation output did not show error messages and indicated that the highest log-likelihood value was replicated. Therefore, the results were not due to local solutions and were global solutions.

Interpretation of Subgroups within 4-Profile Solution. Model 4 was examined further to interpret patterns of profiles and sizes of each indicator variable within each profile. The variance of variables was constrained so that the variances were the same for all variables. As a result, the differences among the latent profiles were due to distinctions in the indicator variables (i.e., positive and negative risk-taking). Profile 1 retained 225 emerging adults (54.6%) and was of large size. Profile 1 was labeled as “Low Positive No Negative” as the standardized means of the subgroup were characterized to be low on both positive and negative risk-taking indicators, relative to the other profiles (see Figure 2b), while the unstandardized means for Profile 1 suggest moderate positive but very low negative risk-taking ($M = .02 (.00)$; see Figure 2a). Profile 2 was rather small ($n = 12, 3.18\%$), labeled as “High Positive and Extremely Negative,” and was characterized as the high positive risk-taking but extremely high negative risk-taking levels relative to the sample. Unstandardized means of both indicators for Profile 2 showed the highest values (see Table 9). The extracted Profile 3 consisted of 132 emerging adults (34%) and was of medium size. Relative to the sample, this group showed average levels in both positive and negative risk-taking indicators and was labeled as “Average on Both.” Mean levels for Profile 3 were average on both positive and negative risks. Profile 4 was of a small size that comprised of 32 college students (8.16%) and was characterized to be low on positive risks and high on negative risks, relative to the sample (see Figure 2b). Mean levels for Profile 4 show moderate endorsement of positive risks and high negative risks and was labeled as “Low Positive and High Negative.”

On average, individuals in Profile 1 (Low Pos No Neg) were classified with 90.0% certainty, individuals in Profile 2 (High Pos Extreme Neg) were classified with 91.3% certainty, individuals in Profile 3 (Average on Both) were classified with 83.4% certainty, individuals in Profile 4 (Low Pos High Neg) were classified with 81.8% certainty. Therefore, Profile 2 (High Pos Extreme Neg) was revealed to be the most reliable among the profiles.

Correlates of Profile Membership (RQ 2). After the final profile solution was retained. All correlate variables (referred to as covariates) were centered before analyses to help interpretation. The 3-step procedure was utilized to further analyze the effects of covariates on profiles. (The first step was identifying the best fit profile solution.) In the second step, the profile data were obtained from the unconditional optimal LPA model (i.e., 4-profile solution) to save the modal profile membership (VAM approach; Vermunt, Asparouhov, & Muthen, 2014) and membership probability weights (BCH approach; Bolck, Croon, & Hageaars, 2004) of each case. Although research suggests that the BCH approach performs better than the VAM method (Black & Vermunt, 2016), because the BCH approach is susceptible to estimation problems when entropy is low ($< .80$) and sample size is small (McLarnon & O'Neil, 2018), the VAM method was selected.

The covariates were investigated with the Mplus R3STEP Auxiliary function to examine whether covariate variables (i.e., eudaimonic motive, hedonic comfort motive, hedonic pleasure motive, extrinsic motive, irresponsible belief, audience controlled belief, calculated belief, thrill-seeking belief, hedonic belief, peer support, negative risk-taking of peers, positive risk-taking of peers, behavioral control of mothers and fathers, and psychological control of mothers and fathers) were related to a greater probability of participants belonging to one profile than another.

The R3STEP is a widely used function that allows stable class solution (i.e., shifting around of classes) and less biased estimations of parameters (Asparouhov & Muthén, 2014).

However, the model with all of the values/beliefs, peer and parental variables failed to converge due to too many variables taxing the model. Therefore, 3 separate models of LPA were conducted with the R3STEP function. The first model included the cognitive values (eudaimonic motive, hedonic comfort motive, hedonic pleasure motive, extrinsic motive, irresponsible belief, audience-controlled belief, calculated belief, thrill-seeking belief, hedonic belief). The second model used peer support, negative risk-taking of peers, and positive risk-taking of peers. The third model included the parental variables, such as behavioral and psychological control of mothers and fathers. An additional fourth model included demographic variables, specifically gender and age. Results of the multinomial logistic regressions are all presented in Tables 10-14. In separate models, the independent variables were the cognitive values, peer factors, and parental variables, and the dependent variable were the identified profile membership. All of the independent variables were centered in SPSS.

Model 1. Endorsing greater eudaimonic motives was related to greater probability in belonging in Profile 1 (Low Pos No Neg) than Profile 4 (Low Pos High Neg), and greater likelihood of belonging in Profile 4 (Low Pos High Neg) than Profile 2 (High Pos Extreme Neg). Greater levels of hedonic comfort motives related with greater probability in belonging in Profile 1 (Low Pos No Neg) than Profile 2 (High Pos Extreme Neg) and Profile 3 (Average on Both). Hedonic pleasure motives, extrinsic motives, audience- controlled beliefs, irresponsible beliefs, and hedonic beliefs were not significantly related to belonging in a certain profile than another. However, greater thrill-seeking beliefs significantly related with greater chance of belonging in Profile 3 (Average on Both) than Profile 1 (Low Pos No Neg) and Profile 2 (High Pos Extreme

Neg), whereas greater calculated risk beliefs associated with a greater chance of belonging in Profile 2 (High Pos Extreme Neg) than Profile 3 (Average on Both).

Model 2. Results from the model with peer factors showed that greater peer support was related to a greater likelihood of belonging in Profile 2 (High Pos Extreme Neg) than Profile 1 (Low Pos No Neg). Greater peer engagement in positive risk-taking associated with a greater chance of belonging in Profile 1 (Low Pos No Neg) than Profile 3 (Average on Both), greater likelihood of belonging in Profile 2 (High Pos Extreme Neg) than Profile 3 (Average on Both), greater likelihood of belonging in Profile 1 (Low Pos No Neg) than Profile 2 (High Pos Extreme Neg), greater chance of belonging in Profile 1 (Low Pos No Neg) than Profile 4 (Low Pos High Neg), and greater probability in belonging in Profile 2 (High Pos Extreme Neg) than Profile 4 (Low Pos High Neg). On the other hand, greater peer engagement in negative risk-taking related with greater probability of belonging in Profile 3 (Average on Both) than Profile 1 (Low Pos No Neg), greater chance of belonging in Profile 2 (High Pos Extreme Neg) than Profile 3 (Average on Both), greater probability of belonging in Profile 2 (High Pos Extreme Neg) than Profile 1 (Low Pos No Neg), greater chance of belonging in Profile 4 (Low Pos High Neg) and Profile 1 (Low Pos No Neg), and greater likelihood of belonging in Profile 4 (Low Pos High Neg) than Profile 2 (High Pos Extreme Neg).

Model 3. Results from model with parental factors demonstrated that greater behavioral control of mothers related with greater chance of belonging in Profile 3 (Average on Both) than other profiles. However, greater behavioral control of mothers significantly related with belonging in Profile 2 (High Pos Extreme Neg) than Profile 4 (Low Pos High Neg). For behavioral control of fathers, greater perceived paternal behavioral control related with greater chance of belonging in Profiles 2 (High Pos Extreme Neg) and 4 (Low Pos High Neg) than

Profile 3 (Average on Both), greater likelihood of belonging in Profile 2 (High Pos Extreme Neg) than 1 (Low Pos No Neg), and greater probability of belonging in Profile 4 (Low Pos High Neg) than Profile 2 (High Pos Extreme Neg). Psychological control of mothers was not significantly related with belonging in a certain profile versus another. However, psychological control of fathers was significantly associated with group membership of certain profiles. Specifically, greater paternal psychological control of fathers related with greater probability in belonging in Profile 2 (High Pos Extreme Neg) than Profile 3 (Average on Both), and greater likelihood of belonging in Profile 2 (High Pos Extreme Neg) than Profile 1 (Low Pos No Neg).

Model 4. Results from the model with age and gender (see Table 14) indicated that greater age was related to a greater likelihood of belonging in Profile 3 (Average on Both) than Profile 2 (High Positive Extreme Negative). Greater age was also associated with a greater likelihood of belonging in Profile 4 (Low Positive and High Negative) than Profile 2 (High Positive Extreme Negative). In regard to gender, females were more likely to belong in Profile 1 (Low Positive No Negative) than Profile 2 (High Positive Extreme Negative).

Risk-Taking Profiles by Group Membership (RQ3). To assess whether there were group differences among Asian and Non-Asian American emerging adults, the grouping variable was included as a covariate to predict class membership. Comparison across the four profiles with respect to racial/ethnic group showed minimal differences. However, Non-Asian Americans were associated with a greater likelihood of belonging in Profile 4 (Low Pos High Neg) versus 1 (Low Pos No Neg; see Model 5 in Table 15). Additional cultural covariates were added to the multinomial logistic regression models to better understand the differences among profiles.

Models were then conducted with all cultural covariates and group as predictors. Once cultural variables were included in the models, ethnic group membership was not significantly

related to belonging in a certain profile than another (Model 6 of Table 15). Such results suggest that ethnic group membership shared overlapping variance with cultural factors.

These models (Model 6 of Table 15) did indicate that greater endorsement of individualistic orientation related with greater chance of belonging in Profile 4 (Low Pos High Neg) than Profile 3 (Average on Both) and greater likelihood of belonging in Profile 4 (Low Pos High Neg) than Profile 1 (Low Pos No Neg). Greater endorsement of collectivistic orientation related with greater likelihood of belonging in Profile 3 (Average on Both) than Profile 2 (High Pos Extreme Neg), greater chance of belonging in Profile 1 (Low Pos No Neg) than Profile 2 (High Pos Extreme Neg), and greater probability in belonging in Profile 4 (Low Pos High Neg) than Profile 2 (High Pos Extreme Neg). Greater endorsement of Asian American values significantly related with greater chance of belonging in Profile 2 (High Pos Extreme Neg) than all other profiles. Lastly, greater familial ethnic socialization related with greater likelihood of belonging in Profile 1 (Low Pos High Neg) than Profile 3 (Average on Both).

Discussion

The present study offers novel evidence on how correlates relate to positive and negative risk-taking profiles among Asian and Non-Asian American college students. Extending on the limited work examining patterns of positive and negative risk-taking behavior (Duell et al., 2022), the goal of the current study was to 1) identify profiles of positive and negative risk-taking in Asian and Non-Asian American college students; 2) validate subgroups of risk-taking by investigating cognitive values and interpersonal correlates of overall risk-taking profiles; and 3) explore whether risk-taking profiles varied by group membership (i.e., Asian versus Non-Asian American) and how cultural correlates were associated with risk-taking profiles. Given that Asian Americans are underrepresented in risk-taking research (Yip et al., 2023), empirically

investigating subgroups of positive and negative risk-taking and correlates of risk-taking subgroups are important as all racial and ethnic groups are likely to engage in both positive and negative risk-taking concurrently. The present study, to date, is the first to assess risk-taking profiles among Asian and Non-Asian Americans with indicators of validated scales that measure positive and negative risk-taking, as well as the first to examine how various cognitive and socio-cultural correlates relate to certain subtypes of risk-taking behavior. Given that such cognitive and socio-cultural correlates may be relatively modifiable (in comparison to demographic characteristics), findings of this study can be critical to the public and researchers to understand patterns of positive and negative risk-taking and to identify ways to help individuals to engage in risks that may be more beneficial and less harmful.

Profiles of Positive and Negative Risk-taking

Latent profile analyses showed four distinct profile groups: Low Positive No Negative (Profile 1, 56.11%), High Positive and Extreme Negative (Profile 2, 2.99%), Average on Both (Profile 3, 32.92%), and Low Positive and High Negative (Profile 4, 7.98%). As expected, at least 3 groups manifested among the data, though the profiles did not exactly coincide with expectations. Specifically, aligning with the hypotheses, findings suggested a subgroup of engaging in average levels in both positive and negative risk-taking (Profile 3), and low positive and high negative risk-taking profile (Profile 4). In addition, though the standardized findings indicated that relative to other profiles, Profile 1 was low on both types of risk-taking, mean levels indicate the level of negative risks was almost zero (Low Positive and No Negative; see Table 9), which was also expected. Interestingly and not hypothesized, another profile (Profile 2: High Positive and Extreme Negative) manifested. Individuals who were characterized in this group were endorsing high positive and very high levels of negative risk-taking, in comparison

to other profiles. Duell and colleagues (2022) had reported a 3-profile solution of risk-taking behavior among Black and Latin American college students, which included an average level of anti-racist behavior and health behaviors, low on anti-racist behavior and high health risks, and high on anti-racist behavior and low health risks. Therefore, although three of the profiles in this study were similar to Duell et al. (2022), the High Positive and Extreme Negative subgroup (Profile 2) was unique to the present sample. It is important to note that one should be cautious in interpreting the High Positive and Extreme Negative Profile, because results revealed that Profile 2 had the smallest size ($n = 12$; see Table 8). Interestingly, the manifested profiles were mostly distinguished by negative risk-taking than positive risk-taking. This might be because the measured positive risks were likely to be risky behaviors that were encouraged by adults and society, whereas negative risky behaviors were behaviors that were less likely to be encouraged to be engaged within the society. Nonetheless, the identification of unique groups of positive and negative risk-taking complements previous work that has mostly focused on findings based on variable-centered models (i.e., assuming that associations are based on average relations that are representative of all members in a single population) by demonstrating that emerging adults can be grouped into classes that vary on their propensity to engage in both positive and negative risks.

Cognitive and Interpersonal Correlates of Membership profiles

Low Positive and No Negative Profile (Profile 1)

Cognitive values and beliefs. Examining the four profiles in relation to the cognitive values and beliefs yielded some findings that supported hypotheses. As expected, greater endorsement of eudaimonic motives related to belonging in the low on both profile than belonging in the low positive and high negative risk profile. As noted above, the examination of

the unstandardized mean values (i.e., low negative and some positive risk-taking) suggest that these findings align with what was expected and imply that high levels of eudaimonic motives may serve as a protective factor on negative risk-taking as others have found (Schwartz et al., 2011). The positive relationship between eudaimonic motives and positive risk-taking are also consistent with qualitative work (Roth, 2014), which suggested eudaimonic motives encouraged aid workers to engage in positive risks (e.g., working in emergency relief, human rights work and protection) to hone personal growth and live a purposeful life despite the physical and safety risks (i.e., encounters with guerrilla, riots, attacks). Findings also replicate those of Pearce and Huta (2023), which showed that greater eudaimonic orientation related with engaging in more helpful social behaviors and especially helping in costly circumstances (i.e., “I help someone even it is personally costly”). Furthermore, recent work demonstrated that greater eudaimonic motives related to delayed gratification (Kryza-Lacombe et al., 2021), which implies that eudaimonic motives could help emerging adults to exert more self-control, make sacrifices to aid others, or execute more strategic decisions that lead emerging adults to engage in rather positive than negative risks.

As expected, greater hedonic comfort motives related with a greater probability in belonging in Low Positive No Negative Profile than other profiles (High Pos Extreme Neg and Average on Both). This implies that emerging adults with greater hedonic comfort motives were more likely to belong in the subgroup that endorsed some positive risks and little negative risks. These findings are consistent with earlier work that indicated positive associations between hedonic beliefs and social risk-taking (positive risk-taking; Kloep et al., 2009). However, the directional pattern between hedonic beliefs and negative risks were inconsistent, which may be because Kloep and colleagues (2009) did not distinguish the two factors of hedonic motivation.

By definition, hedonic comfort motive involves pursuits of seeking comfort, ease, and relaxation (LeFebvre & Huta, 2020) rather than seeking a more aroused state such as excitement or pleasure. Perhaps individuals endorsing hedonic comfort motives view negative risks as less appealing, as Behzadnia and Ryan (2018) found a positive relationship between hedonic comfort and amotivation. This study's findings further advance the literature by demonstrating that hedonic comfort and pleasure motives may be driving some variation in risky behaviors among Asian and Non-Asian American emerging adults.

Peer factors. Consistent with expectations, findings indicated that greater peers' engagement in positive risk-taking related to a greater chance of belonging in Profile 1 than other subgroups. Similarly, others have reported inverse links between positive peer environments and negative risk-taking and reported positive relationships between positive peer environments and positive risk-taking (Patterson et al., 2022). However, it was surprising that engaging with peers who endorse positive risks did not relate to *greater* levels of the one's positive risk-taking, which also seems to misalign with Stone and Allgaier's (2008) social values theory. However, the present study was limited to fully examine the social values theory because the participants were not specifically asked whether their peers encouraged them to engage in certain risky behaviors.

High Positive and Extreme Negative Profile (Profile 2)

Cognitive beliefs and values. Higher levels of thrill-seeking beliefs were related with belonging in Profile 2 (and Profile 3) than Profile 1, which was expected for negative risks but inconsistent with what was expected for positive risks. Kloep et al. (2009) did not find significant relations between thrill-seeking motives and positive social or negative risks among Turkish adolescents. However, Duell and Steinberg (2020)'s work indicated that thrill seeking beliefs positively related to both positive and negative risks, and others echoed their findings

(higher sensation seeking was related to positive risks; Armstrong-Carter et al., 2023; Wymer et al., 2008). Therefore, the present study's finding was somewhat supported by previous research. The study's findings may align with the prototype-willingness model, which suggests that individuals have thoughtful intentions and motives to engage in risky behavior (Gerrad et al., 2008), but also highlights that emerging adults could be eager to engage in a range of risky behaviors. Specifically, those high in thrill-seeking may want to spend time with friends to drink, experiment, meet new friends, and stand up for unjust issues (Blankenstein et al., 2020; Duell et al., 2020). The prototype-willingness model is also consistent with more general dual processes models (e.g., Steinberg, 2008). Dual process models propose that people are dual processors that rely on rational and analytical thought, but also on more automatic and heuristic processes. The latter route (automatic and heuristic capacity) is often reasoned to relate to more negative risk-taking (Boyer, 2006). Though prototype-willingness model (and dual-process models) do not consider positive risk-taking, the current findings extend the literature by linking such theories to a broader definition of risk-taking, which are also consistent with Duell and Steinberg's (2020) work. Given that emerging adults are agentic, and because emerging adulthood is a distinct period that encourages exploration, experimentation, and self-focus (Nelson, 2020), some emerging adults may intentionally want to engage in negative risks and positive risks as well.

Peer factors. Inconsistent with expectations, findings suggested that greater peer support related with a greater likelihood of belonging in High Positive and Extreme Negative Profile than Low Positive No Negative Profile (Profile 1). In relation to negative risks, findings were against some that indicated inverse relations between peer support negative risk-taking (Telzer et al., 2015), but work with adolescents showed similar findings. Specifically, greater peer support related with greater substance use and risk-taking among adolescents (Piko, 2000; Wills et al.,

2004). Furthermore, experimental studies with emerging adults demonstrated that peers' direct encouragement predicted greater unspecified risk-taking propensity (Reynolds et al., 2014). Thus, although peer support is related to various positive outcomes (greater self-esteem and prosocial behavior; Lan & Wang, 2019; better mental health; Richard et al, 2022), peer support could also contribute to higher negative risky behavior. In relation to positive risks, finding align with previous work that have demonstrated positive relationship between peer support and positive risks (Lang & Wang, 2019; Padilla-Walker & Bean, 2008). Overall, findings suggest that peers offer greater social connection and promote adaptive behavior but at the same time could encourage behaviors that may not be beneficial for one's overall long-term well-being despite offering immediate enjoyment or pleasure.

Parental factors. Furthermore, greater psychological control of fathers unexpectedly related with a greater likelihood of belonging in high positive and extreme negative risks profile than Profiles 1 (Low Positive No Negative) and 3 (Average on Both). In relation to negative risks, the positive relationship between paternal behavioral control and negative risky behavior was consistent with previous work of Faherty and colleagues (2020) that suggested that greater parental (both mothers and fathers) psychological control was related to greater negative risky behavior. However, our findings suggested that psychological control of mothers had minimal differences among belonging in a certain profile than another, which was inconsistent with what Faherty et al., (2020) found. Interestingly, others indicated that the link between maternal psychological control and risky behavior varied by the informant. Specifically, in Urry and colleagues (2015) maternal psychological control was found to be unrelated with emerging adults' *self-reported* negative risky behavior, which aligns with the study's findings. However, greater maternal psychological significantly related with higher *maternal* reports of child risk

behavior (Urry et al., 2015). Given that emerging adults have greater chance of moving out of their parents' house (Arnett, 2000), perhaps maternal psychological control does not matter as much as emerging adults are physically away from the source of control and have other sources of support that buffer the effects of psychological control (e.g., peers, mentors). Furthermore, evidence from adolescent research indicates that mothers and fathers' parenting may be differentially associated with child outcomes (e.g., Padilla-Walker et al., 2018). For instance, Ruiz-Ortiz and colleagues (2017) showed that only father overprotection (but not mother overprotection) related to greater externalizing problems among adolescents.

Although a growing body of work indicates that fathers (specifically autonomy support) play a unique role in positive risks such as prosocial behavior, especially among Asian American emerging adults (Padilla-Walker et al., 2017; Wu, 2009), it was surprising that greater paternal psychological control related with a greater likelihood of being a member of a group that was characterized with high positive risks (and extreme negative risks). Such findings misaligned with previous research that found no concurrent or longitudinal links (i.e., 1 year later) between paternal psychological control and prosocial behavior among Asian and European-American emerging adults (Padilla-Walker et al., 2017). However, others note the child's perception of psychological control matters (Scharf & Goldner, 2018), and that continuous engagement of psychological control could communicate that parents are concerned and care about their child's development (Fung & Lau, 2012). Therefore, if emerging adults have a positive perception of paternal psychological control, they may also be willing to engage in higher levels of positive risks. Future work should include measures that assess valence of how children perceive their parents' controlling behaviors.

Overall, as the present study was the first to examine relations between parental control concurrent patterns of positive and negative risks, findings extend the literature that parents continue to be differentially related to child outcomes throughout emerging adulthood and that fathers may have a larger role on influencing overall risk-taking behavior than do mothers.

Average on Both Profile (Profile 3)

Cognitive beliefs and values. In relation to risk-taking motives, consistent with expectations, higher levels of thrill-seeking beliefs were associated with belonging in Profile 3 (Average on Both) than Profile 1 (Low Positive No Negative). However, the present study's significant relations among thrill-seeking and both risky behaviors were inconsistent with work from Kloep et al. (2009). Their study reported no significant relations between thrill-seeking beliefs and negative risk-taking nor positive social risk-taking (i.e., organize an activity for friends, moral courageous behavior). On the other hand, theoretical and empirical work align with the study's findings. For instance, Duell and Steinberg (2020) note that thrill seeking beliefs positively relate to both positive and negative risks, and others demonstrate that higher sensation seeking was related to positive risks, such as having greater desires to belong in activist organizations and applying for leadership positions (Wymer et al., 2008), and higher prosocial behavior (Armstrong-Carter et al., 2023). Thus, the present study's findings extend the literature by suggesting thrill-seeking beliefs were correlated with engaging in average levels of both positive and negative risk-taking behavior in concert.

Parental factors. Rather than being associated with high positive/low negative risk profiles, greater behavioral control of mothers unexpectedly related with belonging in average risk-taking subgroup than other profiles. Results were consistent with previous work that reported greater maternal behavioral control related to less health risk behaviors among emerging

adults (Padilla-Walker et al., 2008). In relation to positive risk-taking, findings also aligned with previous work that reported positive links between maternal behavior control and prosocial behavior (van der Storm et al., 2022), and especially when behavioral control occurred when satisfaction with parent-child relationship was high (Lindell et al., 2017). Both patterns suggest that maternal behavioral control may serve as a protective factor against risk-taking patterns that are characterized by being extremes on one end or both poles of risky behavior (e.g., extreme negative or low in positive risks). As mentioned previously, because emerging adults are likely to be physically further away from their mothers than adolescents (Arnett, 2009), emerging adults may view mother's attempt to control behavior as advice or recommendations rather than strict imposition as mothers will have less capability to enforce rules, as Lindell et al. (2017) suggested.

Low Positive and High Negative (Profile 4)

Peer factors. Findings suggested that greater peer engagement in negative risk-taking related with greater likelihood of belonging in Profile 4 than the other profiles. Consistent with the present study, Patterson et al. (2022) demonstrated that negative peer environments had positive relations to negative risk-taking and positive risk-taking. Overall, the findings with peer engagement may imply that either socialization (i.e., peers model certain beliefs and behaviors, which individuals adopt) or selection effects (i.e., individuals select peers with similar beliefs and behavior), or both, could influence peer affiliation and one's pattern of overall risk-taking behaviors.

Parental factors. On the other hand, greater paternal behavior control corresponded to a greater probability of belonging in Profile 4 (Low Positive/High Negative) than other profiles. This finding was unexpected, but parallels work from parenting research. For instance, greater

paternal engagement of activities has been related to an increase intent to engage in negative risky behaviors among Black adolescents (Cryer-Coupet et al., 2020) and higher paternal involvement was associated with US adolescents experiencing more internalizing and externalizing behavior issues (Yoon et al., 2018). Ju and colleagues (2020) also reported that greater father overprotection was related to higher endorsement of negative risky behavior among Chinese college students. Others note that the relationships with behavioral control and feeling autonomy and respect was negative only for fathers among emerging adults (but positive for mothers; Lindell et al., 2017). Therefore, when fathers engage in greater behavioral control, emerging adults may perceive that they are not respected or feel like that they do not need to adhere to rules, which could further encourage them to engage in greater negative risks and few positive risks.

Unrelated Non-Cultural Correlates of Membership Profiles

Although several hypotheses were supported, others were not. Specifically, hedonic pleasure motives, extrinsic motives, audience-controlled beliefs, calculated risk beliefs, and hedonic beliefs showed minimal differences across profiles and were not significantly related to subgroups of risk-taking profiles. The fact that hedonic pleasure motives and hedonic beliefs were unrelated to a certain risk-taking subgroup was surprising because previous work have reported significant positive correlations between hedonic beliefs/orientations and positive social risk-taking (Kloep et al., 2009; Pearce & Huta, 2022) and also negative social risk-taking (“knowing you are being unfair to someone but doing it anyway” Pearce & Huta, 2022). As the negative risk-taking measure (Fryt et al., 2021) assessed more health/safety risks than negative social risks as Pearce and Huta (2022) assessed, perhaps the hedonic pleasure motives matter less for negative health/safety risks than social.

Similarly, constructs of extrinsic motives and audience-controlled beliefs were unexpectedly unrelated to patterns of negative and positive risk-taking behavior, which has been found in adolescent populations (Hawke & Rieger, 2013; Williams et al., 2000). Findings may be inconsistent with prior work due to life-span period differences. Because the current study included emerging adult populations, perhaps values and beliefs in relation to gaining social status or power matters less during college years as individuals are focusing more on their self (e.g., navigating identity, career goals) than others (Nelson, 2020). This might suggest that extrinsic motives may decrease with age and maybe even earlier than LeFebvre and Huta (2020) reported (i.e., after 30s).

Demographic Correlates of Risk-taking Profiles

Findings of exploratory analyses on relations between age, gender and risk-taking subgroups indicated that in relation to age, older emerging adults (closer to the maximum sample age of 23) had greater likelihood of belonging in either Average on Both Profile (Profile 3) or Low Positive High Negative Profile (Profile 4) than High Positive Extreme Negative Profile (Profile 2). In regard to negative risk-taking, these findings are consistent with Duell and colleagues' (2018) reports of a u-shaped progression of negative health risks (peak of health risks were around ages 23-24). As the legal age is met, older emerging adults could be engaging in more negative risky behavior. For positive risks, Fryt et al. (2023) also showed that a quadratic model best explained age patterns positive risk-taking. Similar to the present study findings, positive risk-taking continued to increase throughout the ages of 20 and reached its apex around middle adulthood (ages: 40-45).

Gender differences in profile membership were minimal, but females were more likely to belong in the subgroup that engaged in some positive and few negative risks (Profile 1) than the

subgroup that engaged in high positive and greater negative risks (Profile 2). These findings align with previous work that reported that women engaged in greater social risk-taking than men (Rollison et al., 2014). However, Fryt and colleagues (2023) note that gender and age explained little variance in positive risk-taking (5%), anti-social risk-taking (11%), and negative health risk-taking (13%), and consistent with this study's approach, argued that other contextual or psychological factors are likely to play to a larger role in overall risk-taking.

Cultural Correlates of Risk-taking Profiles

Ethnic group. Contrary to expectations, findings suggested that risk-taking subgroups did not vary by racial/ethnic group. Only one significant difference was found among groups, which suggested that non-Asian Americans were more likely to be belong in Low Positive and High Negative group (Profile 4) than Low Positive No Negative group (Profile 1). Very little work has conducted cross-cultural comparisons of risky behavior among Asian and Non-Asian American emerging adults, but work with adolescents does suggest a similar trend which suggests that Asian American adolescents engage in less risk-taking behavior than other racial/ethnic groups (Tosh & Simmons, 2007). However, there may be more specific trends than global group differences as Tosh and Simmons' (2007) review notes that risk-taking patterns differ by nationality (e.g., highest cigarette use among Southeast Asian descent compared to any racial group) and also acknowledges that Asian Americans' rates of negative risky behavior tend to catch up with other ethnic/racial counterparts later in adulthood. Therefore, it should be noted that these results are preliminary. Furthermore, as noted in the results section, once additional cultural variables were added to the model, the difference among Asian and Non-Asian Americans was no longer significant, which may imply that other variables are stronger correlates of risk-taking profiles than ethnic group.

In addition, because the LPA model assumes that there is measurement equivalence across Asian and non-Asian American emerging adults, these findings must be interpreted with caution. Yet tests for measurement invariance did suggest that the more constrained models had better fit than the unconstrained models, providing evidence for invariance. However, Olivera-Aguilar and Rikoon (2018) raised concerns on conducting measurement invariance test with samples sizes that were smaller than 500. More work is needed to examine measurement invariance among Asian and Non-Asian American emerging adults with a larger sample size (i.e., greater than 500).

Low Positive No Negative Profile (Profile 1)

As expected, greater collectivistically-oriented individuals were more likely to fit into Profiles 1, 3, or 4 than 2, which suggests that individuals who endorsed greater collectivistic values were less likely to be in the subgroup that endorsed high levels of both negative and positive risks. Such findings were consistent with the previous work that found negative links between collectivistic values and health risk-taking (Schwartz et al., 2021).

Interestingly, greater familial ethnic socialization related with being a member of Profile 1 (Low Positive No Negative) than Profile 3 (Average on Both), which was not expected. Although previous work has examined links between familial ethnic socialization and negative health risks and delinquent behavior, most of the work has studied African American individuals (Neblett Jr. et al., 2010, Kwon et al., 2022), and some has indicated that familial ethnic socialization was not significantly related to risky sexual or substance use behavior among African American college students (Heads et al., 2020). The present study was the first to examine how familial ethnic socialization relates to overall risk-taking patterns among Asian and Non-Asian Americans emerging adults, and the novel finding suggests that greater familial

ethnic socialization relates to greater chance of belonging in the subgroup that is characterized with positive risks and low negative risks. As familial ethnic socialization involves embracing one's culture and identity roots and is associated with a host of positive outcomes (Hughes et al., 2008; Supple et al., 2006), the protective influence may further extend to patterns in endorsing some positive risks and few negative risks.

High Positive and Extreme Negative Profile (Profile 2)

Unexpectedly, greater endorsement of Asian American values had a greater chance of belonging in Profile 2 than all other profiles. Profile 2 is comprised of individuals who endorse high levels of negative risk-taking but also high levels of positive risk-taking. This finding was surprising, but perhaps it suggests that stereotyping Asian Americans as one homogenous group (e.g., high achievement and the model minority; Alvarez et al., 2006) may be erroneous. Given that the emerging adults in Profile 2 are endorsing higher levels of negative risks *and* high positive risks, these individuals may be those who are embracing and enjoying the less-structured, opportunities, and experimentation phase of emerging adulthood. Research does demonstrate that the model minority myth often contributes to diminishing other problematic behavioral outcomes, such as health risks (Sabato, 2016; 2018; Yip et al., 2023) and gang involvement (Tsunoaki & Kposowa, 2005), especially among Asian Americans. As Yip and colleagues (2023) argue, the viewpoint of portraying those with higher Asian American values (likely Asian Americans) as not experiencing struggles or having problems, and only high achieving (Whaley & Noel, 2012) can conceal developmental challenges and participation in overall risky behavior. Another reason why greater Asian American values related with high positive and extreme negative risks could be due to emerging adults experiencing cultural clashes between Asian and American values. Shenkar (2001) further explains that acculturation

causes more distress when cultural differences between the origin culture and host culture are greater. Unsurprisingly, greater acculturative stress has been reported to be related with greater psychological problems among Korean, Chinese, and Vietnamese immigrants (Yeh, 2003) and binge drinking among Asian American adolescents (Hahm et al., 2004). Such evidence implies that contrasts of cultural values can cause distress for some. In addition, past studies with Asian American samples have reported that perceptions of parental behavior, such as acculturation of parents (Lee et al., 2000) and parent-child acculturation gap (define; Ahn et al., 2018) related to the child's psychological health and family conflict. Though the present study did not measure emerging adults' acculturation levels, our findings may be implying that if the emerging adults' enculturation processes were ongoing, they may be trying to establish autonomy and breaking free from their parents, which could explain high levels of both positive and negative risk-taking behavior. Nonetheless, perhaps this finding is suggesting and challenging the public that we may not have been offering culturally-sensitive health promotion messages for those who are higher on Asian American values.

Low Positive and High Negative (Profile 4)

Findings suggested that higher levels of individualistic orientation associated with greater probability of belonging in Profile 4 than Profiles 1 (Low Positive No Negative) and 3 (Average on Both). As expected, greater individualistic-orientated individuals were more likely to engage in high negative risk-taking and some positive risk-taking than other individuals who endorsed low positive and negative risks and those who endorsed average levels of positive and negative risks. Interestingly, these findings were inconsistent with recent research that examined the role of sociocultural factors and health risk-taking behavior profiles among US adults (Perrotte et al., 2021). Perrotte and colleagues (2021) reported that greater individualistic orientation related with

odds in belonging to the divergent subgroup that comprised of adults engaging in beneficial medical risk-taking (e.g., donating blood, medical adherence) and less health risks (e.g., unsafe sex, irresponsible drinking). Such findings may be due to age differences as Perrotte et al. had a wider age range (18-55 years old) and they found that older individuals were more likely to belong in the divergent subgroup than the high-risk subgroup.

Summary

Main goals of this project were to investigate whether overall risk-taking behavior of Asian and Non-Asian American emerging adults comprised of qualitatively different subtypes of risk-taking profiles, assess if group subtypes were associated with cognitive, peer and parental factors, and examine whether ethnic group and cultural factors related with belonging in a certain subgroup of positive and negative risk-taking. Overall, findings showed that greater eudaimonic motives, hedonic comfort motives, peer positive risk-taking, collectivistic orientation, and familial ethnic socialization related to greater likelihood of belonging in Low Positive No Negative Profile (Profile 1). Higher levels of thrill-seeking beliefs, peer support, and psychological control of fathers related with belonging in High Positive and Extreme Negative Profile (Profile 2), whereas greater thrill-seeking beliefs and behavioral control of mothers related with belonging in Average on Both Profile (Profile 3). Lastly, greater peer negative risk-taking, behavioral control of fathers, identifying as Non-Asian American, and individualistic orientation related with belonging in Positive and High Negative Profile (Profile 4). These results add to the limited literature on identifying profiles of risk-taking among minoritized college students (Duell et al., 2022) and US adults (Perrotte et al., 2021), and further extend the literature by indicating cognitive, peer, parental, and cultural factors may influence Asian and Non-Asian American emerging adults' concurrent positive and negative risk-taking behavior.

The findings of the study have several important theoretical and practical implications. Given that emerging adulthood is a unique developmental period that is getting prolonged and is characterized with increased instability (Arnett et al., 2014), it is important to investigate how emerging adults are engaging in overall risky behavior. Furthermore, as emerging adults are participating in exploration, experimentation, and self-focus (Nelson, 2020), risk-taking behavior is a key developmental aspect of emerging adulthood. Thus, it is important to include both positive and negative risk-taking and examine the relations among psychosocial-cultural factors and risk-taking patterns. Theoretically, the examined correlates of the study have a developmental component that have formed from various influences (e.g., family, schools, culture) across individuals' early lifetime, and yet research also notes the continued role of parental and peer factors during emerging adulthood (O'Connor et al., 2011). Given that emerging adulthood is a time when peers become the primary social context rather than parents, it was paramount that the present study included both relational predictors that may foster development. Further, recent work also shows that risk-taking profiles change over college (Marin et al., 2019). Such findings highlight the need of incorporating a developmental perspective in understanding overall risky behavior.

Limitations and Future Directions

Though the present study contributes to the literature, the findings should be interpreted considering some limitations. First, the study only included two indicators (positive and negative risk-taking), which was less than what was recommended by Tein et al. (2013). As Tein and colleagues (2013) reported that greater number of indicators related with increased statistical power, future studies should include incorporate other risk-taking measures (e.g., DOSPERT; Blais & Weber, 2006; prosocial behavior measure) to better examine overall risk-taking profiles.

In particular to Asian American emerging adults, future research could consider racial uplifting (i.e., uplifting racial encounters such as outgroup appreciation, cultural bridging, and overcoming obstacles; see Ong et al., 2022) as a construct of positive risk-taking. Furthermore, despite research indicating that varying sample size had minimal impact on statistical power (Tein et al., 2013), others recommend larger sample sizes to accurately extract profiles (Spurk et al., 2020) and thus future studies could include larger samples.

Additional limitations were due to sample characteristics. First, the Asian American sample did not include all Asian ethnicities and the analyses involved a pooled group of various national Asian Americans ethnicities. Given that Asian Americans are a heterogeneous group (Yoshikawa et al., 2016), and because research conducted with pan-ethnic Asian samples are reported to be mixed (see Umana Taylor et al., 2011), it is recommended to recruit specific national origin Asian groups to better examine differences and have fewer obscure findings. Furthermore, collapsing the non-Asian American group was not ideal because differences also exist among White, Black, and Hispanic emerging adults in terms of risky taking (Benner et al., 2018; Duell & Steinberg, 2020). Future work should seek to actively recruit more diverse samples to assess racial/ethnic differences among risk-taking profiles. Third, there were limitations in relation to the Non-Asian American samples being recruited through the SONA pool. These students were enrolled in Psychology classes and majority of the Non-Asian Americans identified as female, findings may be limited in generalizing to a broader US college population. In addition to gender differences in risk-taking (Byrnes et al., 1999; Rolison et al., 2014), research does indicate that positive risk-taking and negative risk-taking varies by age period (Duell et al., 2018), which could be due to different provided opportunities and life experiences. More work is needed to better understand how other age periods and gender identity

relate to one's probability of belonging in a certain risk-taking profile. Lastly, because the present study only recruited college students, findings may not be generalizable to non-college students. Recent work indicated differences in risk-taking behavior among college and non-college students (Sarshar et al., 2019), so research would benefit from diverse samples that include non-college students.

Because the profile sizes were small for several groups, specifically High positive Extreme Negative (profile 2) and Positive and High Negative (profile 4), the present study was limited in making strong claims about how certain correlates relate to subtypes of profiles. Interestingly, the small groups were both characterized to be the more extreme groups, which was consistent with Duell et al. (2022). Further, as the main objective of the current study was to identify if emerging adults could be identified into groups based on their engagement in positive and negative risk-taking patterns, it was beyond the scope of this study to further examine distal outcomes related to each subtype of risk-taking profile. Future research should also examine how certain subtypes of positive and negative risk-taking relate to outcomes, such as overall well-being or depressive symptoms.

Moreover, measurement invariance was not examined for key variables. Because the sample of this study included both Asian and Non-Asian American emerging adults, it is important to assess whether the measures are applicable to both groups (Knight et al, 2009). In addition, all measures were self-reported, though one question assessed social desirability (i.e., On a 1-7 rating scale: Do you commit to providing thoughtful answers to the questions of the survey?; $M = 6.43$ $SD = 1.25$), it is possible that individuals may have over-reported or under-reported their engagement in positive and negative risk-taking behaviors. Finally, as this study was correlational, directionality could not be determined on whether greater probability of

belonging in a certain group related to higher levels of certain values or vice versa. A longitudinal design could aid in understanding directionality about how covariates relate to risk-taking profiles. It would also be interesting if these risk-taking profiles change throughout the college years.

Conclusions

The findings of the present study offer new evidence that Asian and Non-Asian American emerging adults are engaging in a variety of risks that include both positive and negative risks. The majority of the emerging adults were endorsing average levels or low levels of positive and no negative risks, but some were endorsing more extreme patterns. The present study's investigation of cognitive and socio-cultural covariates rather than often studied demographic covariates (e.g., Duell et al., 2022) is a strength, as these factors are relatively more modifiable than demographic factors. Furthermore, the inclusion of Asian American emerging adults and cultural factors in risk-taking research is another strength of the study as Asian Americans are understudied in psychology research and especially in areas of risky behavior. Therefore, the current study advances the understanding on how Asian and Non-Asian American emerging adults can be classified into subgroups based on risk-taking behavior, and demonstrates that cognitive and socio-cultural factors related with belonging in a certain risk-taking profile than others. Based on the current findings, these findings help understand who, why, and how emerging adults are engaging in overall risk-taking behavior. Though there is more work needed to understand outcomes related to each risk-taking profile, future interventions could benefit from targeting the identified correlates in this study (cognitive values, socio-cultural values) to help Asian and Non-Asian emerging adults to engage in a more balanced risky behavior profile.

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Table 1*Demographics of gender, race/ethnicity, nationality, generation status, and age*

| Variable | Total (<i>N</i> = 401) | | Asian (<i>N</i> = 202) | | Non-Asian (<i>N</i> = 199) | |
|---|-------------------------|-----------|-------------------------|-----------|-----------------------------|-----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Gender | | | | | | |
| Male | 124 | 30.90 | 88 | 43.60 | 36 | 18.10 |
| Female | 274 | 68.30 | 112 | 55.40 | 162 | 81.40 |
| Race/ethnicity | | | | | | |
| Caucasian | 183 | 45.60 | - | - | 183 | 92.00 |
| Black | 4 | 1.00 | - | - | 4 | 2.00 |
| Hispanic | 2 | .50 | - | - | 2 | 1.00 |
| Asian | 186 | 46.40 | 186 | 92.10 | - | - |
| Multiracial | 26 | 6.50 | 16 | 7.90 | 10 | 5.02 |
| Nationality of Asian/Asian Americans | | | | | | |
| Bangladeshi | | | 1 | .20 | - | - |
| Chinese | | | 45 | 11.20 | - | - |
| Filipino | | | 16 | 4.00 | - | - |
| Indian | | | 15 | 3.70 | - | - |
| Japanese | | | 7 | 1.70 | - | - |
| Korean | | | 79 | 19.70 | - | - |
| Taiwanese | | | 26 | 6.50 | - | - |
| Vietnamese | | | 7 | 1.70 | - | - |
| Other | | | 4 | 1.00 | - | - |
| Generation status | | | | | | |
| 1 st generation | 65 | 16.20 | 60 | 29.70 | 5 | 2.50 |
| 2 nd generation | 143 | 35.70 | 134 | 66.30 | 9 | 4.50 |
| 3 rd generation | 41 | 10.20 | 8 | 4.00 | 33 | 16.60 |
| 4 th generation+ | 152 | 37.90 | - | - | 154 | 76.40 |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Age | 20.68 | 2.93 | 20.96 | 2.95 | 20.39 | 2.89 |
| Socioeconomic Status | 6.23 | 1.57 | 6.21 | 1.60 | 6.25 | 1.53 |

Table 2
Demographics in relation to school and parental education

| Variable | Total (N = 401) | | Asian (N = 202) | | Non-Asian (N = 199) | |
|---|-----------------|-------|-----------------|-------|---------------------|-------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| School | | | | | | |
| West Virginia University | 224 | 55.90 | 31 | 15.30 | 193 | 97.00 |
| Virginia Tech | 80 | 20.00 | 79 | 39.10 | - | - |
| University of Pittsburgh | 34 | 8.50 | 33 | 16.30 | - | - |
| University of Maryland, College Park | 17 | 4.20 | 17 | 8.50 | 1 | .50 |
| Penn State | 15 | 3.80 | 13 | 6.50 | - | - |
| George Mason University | 7 | 1.80 | 7 | 3.50 | - | - |
| University of California, Davis | 4 | 1.00 | 4 | 2.00 | - | - |
| Virginia Commonwealth University | 3 | .70 | 3 | 1.50 | 1 | .50 |
| University of Virginia | 3 | .70 | 3 | 1.50 | - | - |
| University of Houston | 2 | .50 | 2 | 1.00 | - | - |
| California State University Fullerton | 2 | .5 | 2 | 1.00 | - | - |
| University of Georgia | 1 | .30 | 1 | .50 | - | - |
| University of California, Riverside | 1 | .30 | 1 | .50 | - | - |
| University of California, Irvine | 1 | .30 | 1 | .50 | - | - |
| Northern Virginia Community College | 1 | .30 | 1 | .50 | - | - |
| Carnegie Mellon University | 1 | .3 | 1 | .50 | 2 | 1.00 |
| California State University Dominguez Hills | 1 | .3 | 1 | .50 | - | - |
| Bucks County Community College | 1 | .3 | 1 | .50 | - | - |
| Year in school | | | | | | |
| Freshman | 129 | 32.00 | 48 | 23.80 | 81 | 40.70 |
| Sophomore | 119 | 29.70 | 56 | 27.70 | 63 | 31.70 |
| Junior | 77 | 19.20 | 42 | 20.80 | 35 | 17.60 |
| Senior | 75 | 18.70 | 55 | 27.20 | 20 | 10.10 |
| Parent education | | | | | | |
| Did not finish high school | 13 | 3.20 | 11 | 5.40 | 2 | 1.00 |
| High School Diploma or GED | 50 | 12.50 | 23 | 11.40 | 27 | 13.60 |
| Attended to college but did not complete degree | 31 | 7.70 | 11 | 5.40 | 20 | 10.10 |
| Associate degree | 27 | 6.70 | 8 | 4.00 | 19 | 9.50 |
| Bachelor's degree | 118 | 29.40 | 61 | 30.20 | 57 | 28.60 |
| Master's degree | 108 | 26.90 | 50 | 24.80 | 58 | 29.10 |
| Doctoral or professional degree | 54 | 13.50 | 38 | 18.80 | 16 | 8.00 |

Table 3
Demographics in relation to religion

| Variable | Total (<i>N</i> = 401) | | Asian (<i>N</i> = 202) | | Non-Asian (<i>N</i> = 199) | |
|------------------------------------|-------------------------|-----------|-------------------------|-----------|-----------------------------|-----------|
| | <i>n</i> | % | <i>n</i> | % | <i>n</i> | % |
| Religion | | | | | | |
| Adventist | 1 | .20 | - | - | 1 | .50 |
| Anabaptist | 2 | .50 | 2 | 1.00 | - | - |
| Asian Folk Religion | 1 | .20 | 1 | .50 | - | - |
| Episcopal/Anglican | 2 | .50 | 1 | .50 | 1 | .50 |
| Assemblies of God | 5 | 1.20 | 1 | .50 | 4 | 2.00 |
| Bible Church | 2 | .50 | 2 | 1.00 | - | - |
| Brethren | 2 | .70 | - | - | 2 | 1.00 |
| Buddhist | 16 | 4.00 | 16 | 7.90 | - | - |
| Catholic/Roman Catholic | 67 | 16.70 | 23 | 11.40 | 44 | 22.10 |
| Christian & missionary Alliance | 28 | 7.00 | 20 | 9.90 | 8 | 4.00 |
| Christian Reformed | 12 | 3.00 | 3 | 1.50 | 9 | 4.50 |
| Christian Science | 1 | .20 | - | - | 1 | .50 |
| Church of Christ | 8 | 2.00 | 3 | 1.50 | 5 | 2.50 |
| Church of God | 6 | 1.50 | 1 | .50 | 5 | 2.50 |
| Hindu | 12 | 3.00 | 12 | 5.90 | - | - |
| Methodist | 22 | 5.50 | 1 | .50 | 21 | 10.60 |
| Muslim | 3 | .70 | 1 | .50 | 2 | 1.00 |
| Orthodox (Eastern, Russian, Greek) | 4 | 1.00 | - | - | 4 | 2.00 |
| Pentecostal | 2 | .50 | 1 | .50 | 1 | .50 |
| Presbyterian | 39 | 9.70 | 36 | 17.60 | 3 | 1.50 |
| Non-denominational Christian | 49 | 12.20 | 21 | 10.30 | 28 | 14.10 |
| No religion | 95 | 23.40 | 51 | 25.00 | 44 | 22.10 |
| Other | 23 | 5.70 | 7 | 3.40 | 16 | 8.00 |
| | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Engagement in religious meetings | 3.94 | 1.73 | 3.58 | 1.88 | 4.30 | 1.48 |

Table 4
Means and standard deviation of variables

| | Total | | | | Asian | | | | Non-Asian | | | | Potential Range |
|-------------------------------|-------|------|------|--------------|-------|------|------|--------------|-----------|------|------|--------------|-----------------|
| | N | M | SD | Actual Range | N | M | SD | Actual Range | N | M | SD | Actual Range | |
| Positive Risk-Taking | 401 | 3.09 | .58 | 1.43-5.00 | 202 | 3.11 | .54 | 1.43-5.00 | 199 | 3.07 | .61 | 1.57-4.72 | 1.00-5.00 |
| Negative Risk-Taking | 401 | 1.41 | .29 | 1.00-2.36 | 202 | 1.34 | .25 | 1.00-2.36 | 198 | 1.48 | .31 | 1.00-2.36 | 1.00-5.00 |
| Audience Controlled Belief | 401 | 2.02 | .64 | 1.00-4.00 | 202 | 2.18 | .62 | 1.00-3.67 | 199 | 1.86 | .63 | 1.00-4.00 | 1.00-4.00 |
| Calculated Risk Belief | 401 | 3.13 | .65 | 1.00-4.00 | 202 | 3.07 | .65 | 1.00-4.00 | 199 | 3.20 | .65 | 1.00-4.00 | 1.00-4.00 |
| Thrill Seeking Belief | 401 | 2.48 | .71 | 1.00-4.00 | 202 | 2.51 | .69 | 1.00-3.75 | 199 | 2.45 | .74 | 1.00-4.00 | 1.00-4.00 |
| Irresponsible Belief | 401 | 1.77 | .51 | 1.00-3.43 | 202 | 1.86 | .49 | 1.00-3.43 | 199 | 1.68 | .52 | 1.00-3.43 | 1.00-4.00 |
| Hedonic Belief | 401 | 2.70 | .64 | 1.00-4.00 | 202 | 2.70 | .61 | 1.00-4.00 | 199 | 2.70 | .67 | 1.00-4.00 | 1.00-4.00 |
| Hedonic-Comfort Motive | 401 | 3.74 | .89 | 1.50-5.00 | 202 | 3.71 | .90 | 1.50-5.00 | 199 | 3.76 | .87 | 1.50-5.00 | 1.00-7.00 |
| Hedonic-Pleasure Motive | 401 | 4.04 | .66 | 2.25-5.50 | 202 | 3.97 | .67 | 2.25-5.00 | 199 | 4.11 | .64 | 2.50-5.00 | 1.00-7.00 |
| Eudaimonic Motive | 401 | 4.08 | .67 | 1.80-5.00 | 202 | 3.98 | .69 | 2.00-5.00 | 199 | 4.19 | .64 | 1.80-5.00 | 1.00-7.00 |
| Extrinsic Motive | 401 | 3.03 | .96 | 1.00-5.00 | 202 | 3.20 | .92 | 1.00-5.00 | 199 | 2.86 | .98 | 1.00-5.00 | 1.00-7.00 |
| Peer support | 401 | 3.73 | 1.10 | 1.00-5.00 | 202 | 3.56 | 1.08 | 1.00-5.00 | 199 | 3.90 | 1.09 | 1.00-5.00 | 1.00-5.00 |
| Peer Positive Risk-Taking | 399 | 3.02 | .65 | 1.29-5.00 | 202 | 3.06 | .62 | 1.64-4.64 | 197 | 2.97 | .68 | 1.29-5.00 | 1.00-5.00 |
| Peer Negative Risk-Taking | 399 | 1.55 | .46 | 1.00-3.05 | 202 | 1.47 | .43 | 1.00-3.05 | 197 | 1.63 | .48 | 1.00-3.05 | 1.00-5.00 |
| Behavioral Control-M | 400 | 1.80 | .47 | 1.00-3.00 | 202 | 1.74 | .48 | 1.00-3.00 | 198 | 1.85 | .47 | 1.00-3.00 | 1.00-3.00 |
| Psychological Control-M | 400 | 1.55 | .51 | 1.00-3.00 | 202 | 1.60 | .52 | 1.00-3.00 | 198 | 1.49 | .50 | 1.00-2.94 | 1.00-3.00 |
| Behavioral Control-F | 385 | 1.50 | .47 | 1.00-3.00 | 194 | 1.49 | .48 | 1.00-3.00 | 191 | 1.51 | .45 | 1.00-3.00 | 1.00-3.00 |
| Psychological Control-F | 385 | 1.42 | .50 | 1.00-3.00 | 194 | 1.44 | .50 | 1.00-3.00 | 191 | 1.41 | .50 | 1.00-3.00 | 1.00-3.00 |
| IND Orientation | 400 | 4.67 | 1.05 | 1.75-7.00 | 201 | 4.72 | .98 | 1.75-7.00 | 199 | 4.63 | 1.12 | 2.00-7.00 | 1.00-7.00 |
| COL Orientation | 400 | 5.05 | .95 | 2.50-7.00 | 201 | 4.94 | .87 | 2.75-7.00 | 199 | 5.16 | 1.02 | 2.50-7.00 | 1.00-7.00 |
| AA Values | 395 | 3.78 | .72 | 1.15-6.07 | 199 | 4.03 | .65 | 2.24-6.07 | 196 | 3.54 | .71 | 1.15-6.07 | 1.00-7.00 |
| Familial Ethnic Socialization | 394 | 3.13 | 1.03 | 1.00-5.00 | 198 | 3.57 | .83 | 1.08-5.00 | 196 | 2.68 | 1.02 | 1.00-5.00 | 1.00-5.00 |

Note. Some variables names have been abbreviated; Individualism orientation = IND, Collectivism orientation = COL, Asian American values = AA Values. Mother-related variables are shortened as M and father-related variables are shortened as F. Participants were given the option to answer “not applicable” for parental measures (behavior and psychological control). * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5
Skewness and kurtosis of main and transformed variables

| | Total | | Asian | | Non-Asian | |
|-----------------------------------|------------|------------|-----------|------------|------------|------------|
| | Skewness | Kurtosis | Skewness | Kurtosis | Skewness | Kurtosis |
| Positive Risk-Taking | .28(.12) | .48(.24) | .57(.17) | 1.29(.34) | .11(.17) | -.11(.34) |
| Negative Risk-Taking | 1.06(.12) | 1.17(.24) | 1.17(.17) | 2.22(.34) | .89(.17) | .46(.34) |
| Calculated Risk Belief | -1.02(.12) | 1.06(.24) | -.77(.17) | .49(.34) | -1.30(.17) | 1.93(.34) |
| Thrill Seeking Belief | -.34(.12) | -.49(.24) | -.47(.17) | -.48(.34) | -.22(.17) | -.48(.34) |
| Irresponsible Belief | .36(.12) | -.34(.24) | .09(.17) | -.53(.34) | .68(.17) | .22(.34) |
| Hedonic Belief | -.33(.12) | -.13(.24) | -.18(.17) | -.09(.34) | -.45(.17) | -.17(.34) |
| Hedonic-Comfort Motive | -.28(.12) | -.60(.24) | -.33(.17) | -.53(.34) | -.22(.17) | -.71(.34) |
| Hedonic-Pleasure Motive | -.16(.12) | -.78(.24) | -.06(.17) | -.85(.34) | -.24(.17) | -.65(.34) |
| Eudaimonic Motive | -.52(.12) | -.10(.24) | -.27(.17) | -.47(.34) | -.80(.17) | .72(.34) |
| Extrinsic Motive | .15(.12) | -.47(.24) | .09(.17) | -.43(.34) | .29(.17) | -.41(.34) |
| Peer support | -.56(.12) | -.64(.24) | -.37(.17) | -.76(.34) | -.81(.17) | -.26(.34) |
| Peer Positive Risk-Taking | .24(.12) | -.06(.24) | .28(.17) | -.24(.34) | .24(.17) | .05(.34) |
| Peer Negative Risk-Taking | 1.11(.12) | .89(.24) | 1.29(.17) | 1.51(.34) | .97(.17) | .49(.35) |
| Behavioral Control-M | .22(.12) | -.58(.24) | .36(.17) | -.56(.34) | .09(.17) | -.49(.35) |
| Psychological Control-M | .88(.12) | -.10(.24) | .76(.17) | -.24(.34) | 1.04(.17) | .16(.34) |
| Behavioral Control-F | .83(.12) | .15(.25) | .96(.18) | .38(.35) | .69(.18) | -.09(.35) |
| Psychological Control-F | 1.40(.12) | 1.18(.25) | 1.27(.18) | .83(.35) | 1.55(.18) | 1.65(.35) |
| IND Orientation | -.07(.12) | -.28(.24) | .15(.17) | .01(.34) | -.19(.17) | -.55(.34) |
| COL Orientation | -.08(.12) | -.23(.24) | .10(.17) | -.30(.34) | -.28(.17) | -.14(.34) |
| AA Values | .01(.12) | .88(.24) | .20(.17) | .97(.34) | .05(.17) | 1.14(.34) |
| Familial Ethnic Socialization | -.16(.12) | -.70(.24) | -.35(.17) | -.12(.34) | .31(.17) | -.57(.34) |
| <i>Transformed Variables</i> | | | | | | |
| Negative Risk (Inverse) | .07(.12) | -.50(.24) | .11(.17) | -.42(.34) | -.01(.17) | -.56(.34) |
| Peer Negative risk (Inverse) | .05(.12) | -.93(.24) | .22(.17) | -.93(.34) | -.12(.17) | -.80(.35) |
| Calculated Risk belief (Log) | -.17(.12) | -.42(.24) | .00(.17) | -.54(.34) | -.36(.17) | -.13(.34) |
| Hedonic-Pleasure (Sqrt) | .13(.12) | -.91(.24) | .22(.17) | -.89(.34) | .06(.17) | -.90(.34) |
| Eudaimonic motive (Sqrt) | -.15(.12) | -.63(.24) | .08(.17) | -.73(.34) | -.37(.17) | -.27(.34) |
| Peer support (Sqrt) | -.22(.12) | -1.04(.24) | -.01(.17) | -.98(.34) | -.47(.17) | -.90(.34) |
| Behavioral control-F (Log) | .32(.12) | -.90(.25) | .43(.18) | -.79(.35) | .20(.18) | -.98(.35) |
| Psychological control-M (Inverse) | .07(.12) | -1.28(.24) | -.09(.17) | -1.24(.34) | .24(.17) | -1.22(.34) |
| Psychological control-F (Inverse) | .53(.12) | -.93(.25) | .42(.18) | -1.09(.35) | .64(.18) | -.72(.35) |

Note. Some variables names have been abbreviated; Individualism orientation = IND, Collectivism orientation = COL, Asian American values = AA Values. Mother-related variables are shortened as M

Table 6
Correlations among main study variables

| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. |
|----------|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|-------------|-------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Pos Risk | Neg Risk | Aud. C | Cal. | Thr | Irr. | Hed.B | Hed-C | Hed-P | Eud | Ext | Peer Sup | Peer Pos R. | Peer Neg R. | BC-M | BC-F | PC-M | PC-F | IND | Col | AAVAL | FAM_ES |
| 1. | - | .17 | .20** | .35*** | .28*** | .16* | .31*** | .12 | .26*** | .40*** | .24*** | .42*** | .18** | .22** | .20** | .10 | .01 | .29*** | .25*** | .06 | .07 |
| 2. | .21** | - | .39*** | .26*** | .44*** | .38*** | .39*** | .05 | .25*** | -.03 | .28*** | .05 | .64*** | .00 | .14 | -.04 | .17* | .23*** | .01 | .10 | -.04 |
| 3. | .1 | .11 | - | .44*** | .49*** | .56*** | .44*** | .16* | .34*** | .04 | .49*** | .16* | .20** | .31*** | -.06 | .04 | .10 | .20** | .22** | .11 | .23*** |
| 4. | .25*** | .12 | .36*** | - | .61*** | .32*** | .72*** | .18* | .45*** | .40*** | .29*** | .25*** | .23*** | .18* | .12 | .07 | .05 | .11 | .28*** | .32*** | .01 |
| 5. | .14** | .29*** | .47*** | .55*** | - | .58*** | .72*** | .08 | .34*** | .17* | .31*** | .06 | .06 | .28*** | .05 | .07 | .11 | .20* | .37*** | .12 | .05 |
| 6. | .05 | .19** | .6***0 | .17* | .52*** | - | .51*** | .10 | .20** | -.05 | .23*** | -.01 | .06 | .25*** | .01 | .03 | .08 | .18* | .20** | -.02 | .07 |
| 7. | .21** | .22** | .49*** | .64*** | .68*** | .49*** | - | .23*** | .45*** | .30*** | .31*** | .19** | .16* | .24*** | .04 | .11 | .04 | .14 | .35*** | .23*** | .03 |
| 8. | -.02 | -.06 | .16* | .13 | .14* | .11 | .22** | - | .64*** | .21*** | .17* | .22** | .16* | .03 | -.01 | -.06 | .09 | .08 | -.02 | .26*** | -.04 |
| 9. | .21** | .04 | .25*** | .34*** | .24*** | .12 | .39*** | .64*** | - | .43*** | .34*** | .26*** | .16** | .15* | .00 | .05 | .07 | .10 | .18** | .28*** | .05 |
| 10. | .22** | -.03 | .02 | .41*** | .14 | -.16* | .15* | .41*** | - | .29*** | .27*** | .31*** | -.04 | .13 | .07 | .01 | -.14* | .30*** | .44*** | .03 | .17 |
| 11. | .13 | .14 | .49*** | .22** | .27*** | .30*** | .16* | .18** | .32*** | .12 | - | .19** | .14* | .02 | .08 | -.08 | .07 | .43*** | .15** | .38*** | .07 |
| 12. | .14* | .07 | .10 | .26*** | .04 | -.08 | .19** | .09 | .26*** | .27*** | .01 | - | .23*** | -.02 | .11 | .14 | .05 | -.15* | -.08 | .38*** | -.04 |
| 13. | .36*** | .03 | .06 | .20** | .10 | .06 | .14** | .08 | .22** | .23*** | .10 | .24*** | - | .17* | .16* | .06 | .03 | .07 | .14** | .26*** | .08 |
| 14. | .15 | .59*** | .09 | .02 | .20** | .11 | .15** | -.04 | .05 | .03 | .10 | .05 | .21** | - | -.02 | .06 | .05 | .24** | .15* | -.00 | .04 |
| 15. | .15 | .08 | .03 | .03 | .06 | .06 | -.07 | -.02 | -.08 | .06 | .13 | -.01 | .19** | .07 | - | .48*** | .21** | .13 | .15* | .13 | .14 |
| 16. | .06 | .04 | .14* | .02 | .12 | .11 | .00 | .01 | -.10 | -.05 | .11 | .03 | .15* | .05 | .49*** | - | .10 | .11 | .19* | .21** | .14 |
| 17. | .06 | .16* | .08 | .02 | .10 | .06 | -.01 | .02 | -.00 | -.02 | .06 | .10 | .16* | .23*** | .33*** | .20** | - | .37*** | .04 | .01 | -.04 |
| 18. | .07 | .07 | .09 | .02 | .09 | .10 | .02 | -.03 | -.05 | .04 | .04 | .12 | .16* | .09 | .38*** | .29*** | .51*** | - | .09 | -.16* | .03 |
| 19. | .12 | .17 | .18* | .17* | .20 | .15* | .02 | .14 | .20* | .24*** | .42*** | -.09 | .17* | .14* | .14* | .07 | .15* | .09 | - | .21** | .29*** |
| 20. | .14 | .01 | .08 | .25*** | .05 | .01 | .15* | .25*** | .40*** | .32*** | .18** | .13 | .20* | .04 | -.02 | .08 | -.14* | -.07 | .28*** | - | .15** |
| 21. | .05 | .07 | .10 | .05 | .16* | .13 | -.06 | .09 | .06 | .08 | .29*** | -.20** | .05 | .13 | .13 | -.04 | .11 | .06 | .47*** | .26*** | -.15* |
| 22. | .10 | -.18* | -.00 | .10 | -.03 | -.08 | -.02 | .17* | .19** | .19** | .02 | .22** | .11 | -.06 | .15* | .14 | .01 | .07 | .06 | .26*** | -.12 |

Note. Asian Americans are at the bottom left, Non-Asian Americans are at the top right-hand side. All variables were abbreviated. Variables were listed in consecutive order: Positive risk-taking, Negative risk-taking, Audience controlled belief, calculated intention belief, Thrill-seeking belief, Irresponsible belief, Hedonic belief, Hedonic comfort motive, Hedonic Pleasure motive, Eudaimonic motive, Extrinsic motive, Peer support, Peer positive risk-taking, Peer negative risk-taking, Behavioral control-Mother, Behavioral control- Father, Psychological control -Mother, Psychological control-Father, Individualistic orientation, Collectivistic Orientation, Asian American Value orientation, and Familial ethnic socialization

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7
Correlations among demographic and variables related to risk-taking

| | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |
|----|--------|----------------|-----------|--------|--------------------|--------|------------|--------|---------|
| | Age | Year in school | Parent Ed | SES | Religious meetings | Gender | Gen Status | Pos RT | Neg RT |
| 1. | - | .50*** | -.24*** | -.06 | .00 | -.17* | -.03 | .00 | -.07 |
| 2. | .43*** | - | -.04 | -.14* | -.20** | -.08 | -.01 | -.13 | .04 |
| 3. | .09 | .05 | - | .38*** | .15* | -.09 | .08 | .10 | .01 |
| 4. | -.06 | -.09 | .44*** | - | .19** | .09 | -.08 | .11 | -.04 |
| 5. | .14* | .14* | -.04 | -.06 | - | -.05 | -.04 | .05 | -.27*** |
| 6. | -.05 | .07 | -.02 | -.07 | -.05 | - | -.04 | -.06 | -.12 |
| 7. | -.23** | -.03 | -.05 | .02 | -.03 | -.04 | - | .07 | -.01 |
| 8. | -.07 | -.14 | .03 | -.02 | -.08 | -.21** | .06 | - | .13 |
| 9. | .01 | -.02 | .11 | .12 | -.14* | -.15* | .07 | .17** | - |

Note. Asian Americans are at the bottom left, whereas Non-Asian Americans are at the top right. Abbreviations were used. Parent education is parental education, Gen status represents generational status. Pos RT indicates positive risk-taking and Neg RT indicates negative risk-taking. Gender was a categorical variable, higher scores should be interpreted as females and lower scores should be interpreted as males. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 8
LPA model fit statistics

| Number of Profiles | AIC | BIC | aBIC | Entropy | LRT | P-value | Adjusted LRT | p value | Smallest class size |
|--------------------|---------|---------|---------|---------|-------|---------|--------------|---------|---------------------|
| 1 | 2281.14 | 2297.12 | 2284.42 | | | | | | |
| 2 | 2219.33 | 2247.29 | 2225.08 | .87 | 67.81 | <.001 | 64.24 | <.001 | 40 (9.98%) |
| 3 | 2205.49 | 2245.42 | 2213.69 | .74 | 19.84 | .05 | 18.80 | .06 | 24 (6.00%) |
| 4 | 2200.44 | 2252.37 | 2211.12 | .78 | 11.04 | .01 | 10.46 | .01 | 12 (3.00%) |
| 5 | 2199.37 | 2263.27 | 2212.50 | .77 | 7.07 | .26 | 6.70 | .28 | 11 (2.74%) |

Note. $n = 401$; The LRT test and the adjusted LRT test compare the current model to the model with $k-1$ profiles.

Table 9*Fit indices for measurement invariance: Multigroup LPA*

| Model | BIC | aBIC |
|---|----------|----------|
| Configural (unconstrained) model | 2853.331 | 2729.581 |
| Equal means across groups | 2836.83 | 2738.469 |
| Equal means and variances across groups | 2790.512 | 2717.531 |
| Equal means, variances, and class sizes across groups | 2729.15 | 2729.145 |

Note. The sample size of Asian American Emerging adults was 201. The sample size of Non-Asian American Emerging adults was 199.

Table 10*Standardized and unstandardized means and errors*

| Indicators | Profile 1 | Profile 2 | Profile 3 | Profile 4 | Profile 1 | Profile 2 | Profile 3 | Profile 4 |
|--------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|
| | (<i>n</i> = 225) M(SE) | (<i>n</i> = 12) M(SE) | (<i>n</i> = 132) M(SE) | (<i>n</i> = 32) M(SE) | (<i>n</i> = 225) M(SE) | (<i>n</i> = 12) M(SE) | (<i>n</i> = 132) M(SE) | (<i>n</i> = 32) M(SE) |
| 1. POS Risk-taking | 3.01(.04) | 3.27(.17) | 3.20(.06) | 3.11(.13) | -.14(.08) | .33(.30) | .19(.10) | .04(.23) |
| 2. NEG Risk-taking | .02(.00) | 2.26(.04) | 1.53(.03) | 1.89(.05) | -.67(.06) | 2.96(.02) | .40(.10) | 1.66(.18) |

Note. Values on the left represent unstandardized values, whereas values on the right represent standardized values.

Table 11
Multinomial logistic regression: cognitive values

| <i>Model 1</i> | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
|------------------------|-----------------------------|------------------|----------------------------|-----------|----------------------------|-----------|------------------------------|------------------|------------------------------|------------------|----------------------------|-----------|
| | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI |
| EUD motives | 1.19 (.34) | .68-2.08 | .33 (.21) | .09-1.18 | .39 (.21) | .14-1.10 | 3.65 (2.43) | .99-13.46 | 3.08 (1.96) | 1.12-8.49 | .84 (.71) | .16-4.44 |
| HED-C motives | 1.66 (.41) | 1.02-2.71 | .47 (.23) | .18-1.21 | .84 (.37) | .36-1.99 | 3.54 (1.70) | 1.38-9.05 | 1.96 (.77) | .91-4.24 | .56 (.34) | .17-1.81 |
| HED-P motives | .61 (.23) | .29-1.27 | 2.88 (2.34) | .58-14.20 | 1.70 (1.24) | .41-7.07 | .21 (.17) | .04-1.05 | .36 (.24) | .10-1.30 | 1.70 (1.88) | .19-14.90 |
| Extrinsic motives | .85 (.16) | .59-1.23 | .69 (.47) | .18-2.62 | .81 (.34) | .35-1.86 | 1.23 (.84) | .33-4.68 | 1.06 (.41) | .49-2.26 | .86 (.73) | .16-4.59 |
| AC belief | 1.26 (.43) | .65-2.45 | 1.88 (2.27) | .18-20.06 | 1.13 (.91) | .23-5.46 | .67 (.81) | .06-7.24 | 1.12 (.82) | .27-4.70 | 1.67 (2.58) | .08-34.30 |
| IRR belief | 1.25 (.55) | .53-2.95 | 2.51 (3.71) | .14-45.64 | 2.97 (3.49) | .30-29.74 | .50 (.76) | .03-9.66 | .42 (.45) | .05-3.27 | .84 (1.73) | .02-46.55 |
| Thrill-seeking belief | .44 (.18) | .20-.97 | 3.11 (2.81) | .53-18.31 | 1.17 (.83) | .29-4.69 | .14 (.13) | .03-.81 | .38 (.23) | .11-1.27 | 2.66 (2.84) | .33-21.64 |
| Hedonic belief | .92 (.42) | .38-2.23 | 1.15 (1.58) | .08-16.93 | 1.73 (1.44) | .34-8.85 | .80 (1.10) | .06-11.77 | .54 (.42) | .12-2.45 | .67 (1.13) | .02-18.54 |
| Calculated risk belief | .93 (.33) | .47-1.85 | .38 (.35) | .06-2.33 | 1.50 (1.20) | .31-7.23 | 2.44 (2.22) | .41-14.52 | .62 (.46) | .15-2.63 | .25 (.32) | .02-2.93 |

Note. OR (SE) = Odds ratio and standard error. 95% confidence intervals (CI) were utilized to determine statistical significance. Bolded values were determined to be significant based on a confidence interval that does not cross 1.00. Some variables were abbreviated.

Table 12
Multinomial logistic regression: peer factors

| <i>Model 2</i> | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
|----------------|-----------------------------|------------------|-------------------------------|-------------------|------------------------|----------|--------------------------------|-------------------|------------------------------|-------------------|------------------------------|-------------------|
| | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI |
| Peer support | .82 (.12) | .62-1.09 | 1.52 (.40) | .91-2.53 | 1.23 (.32) | .74-2.05 | .54 (.14) | .32-.91 | .67 (.16) | .41-1.08 | .82 (.21) | .41-1.08 |
| Peer PRT | 2.24 (.55) | 1.39-3.61 | .09 (.05) | .03-.24 | .45 (.20) | .19-1.08 | 24.49 (12.83) | 8.77-68.35 | 4.99 (2.17) | 2.13-11.71 | 2.23 (1.00) | 2.13-11.71 |
| Peer NRT | .45 (.11) | .28-.72 | 10.89 (5.42) | 4.10-28.87 | 2.22 (.99) | .93-5.34 | .00 (.00) | .02-.12 | .20 (.09) | .09-.47 | .45 (.20) | .19-1.08 |

Note. OR (SE) = Odds ratio and standard error. 95% confidence intervals (CI) were utilized to determine statistical significance. Bolded values were determined to be significant based on a confidence interval that does not cross 1.00. Some variables were abbreviated. Peer positive risk-taking was abbreviated as PRT and peer negative risk-taking was abbreviated as NRT.

Table 13
Multinomial logistic regression: parental factors

| <i>Model 3</i> | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
|----------------|------------------------|----------------|------------------------|-------------------|------------------------|-------------------|------------------------|----------------|------------------------|----------|------------------------|-------------------|
| | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI | <i>OR (SE)</i> | 95% CI |
| BC- Mother | .42 (.17) | .19-.92 | .14 (.07) | .05-.39 | .30 (.18) | .10-.94 | 2.95 (1.30) | 1.25-7.00 | 1.40 (.71) | .52-3.78 | 3.34 (1.95) | 1.07-10.47 |
| BC-Father | 2.06 (.85) | .92-4.66 | 14.08 (8.52) | 4.30-46.12 | 4.22 (2.26) | 1.48-12.07 | .15 (.08) | .05-.42 | .49 (.21) | .21-1.13 | .24 (.13) | .08-.68 |
| PC -Mother | 1.47 (.52) | .74-2.92 | .90 (.29) | .25-3.27 | .97 (.65) | .26-3.61 | 1.63 (1.02) | .48-5.52 | 1.51 (.88) | .48-4.74 | 1.03 (.69) | .28-3.84 |
| PC- Father | 1.21 (.46) | .58-2.53 | 3.42 (1.74) | 1.26-9.29 | 1.50 (1.01) | .41-5.58 | .35 (.16) | .14-.87 | .80 (.46) | .26-2.46 | .67 (.45) | .18-2.47 |

Note. OR (SE) = Odds ratio and standard error. 95% confidence intervals (CI) were utilized to determine statistical significance. Bolded values were determined to be significant based on a confidence interval that does not cross 1.00. Some variables were abbreviated. Behavioral control was abbreviated as BC and psychological control was abbreviated as PC.

Table 14
Multinomial logistic regression: Age and gender

| | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
|--------|----------------------------|----------|----------------------------|----------------|-------------------------|----------|------------------------------|-------------------|----------------------------|----------|----------------------------|----------------|
| | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI |
| Age | 1.01 (.04) | .94-1.10 | .39 (.14) | .19-.70 | 1.02 (.06) | .91-1.14 | 2.61 (.94) | 1.29-5.29 | 1.00 (.06) | .89-1.12 | .38 (.14) | .19-.78 |
| Gender | 1.11 (.36) | .59-2.10 | .24 (.18) | .06-1.01 | 1.22 (.75) | .37-4.08 | 4.64 (3.37) | 1.12-19.28 | .91 (.50) | .31-2.68 | .20 (.18) | .03-1.22 |

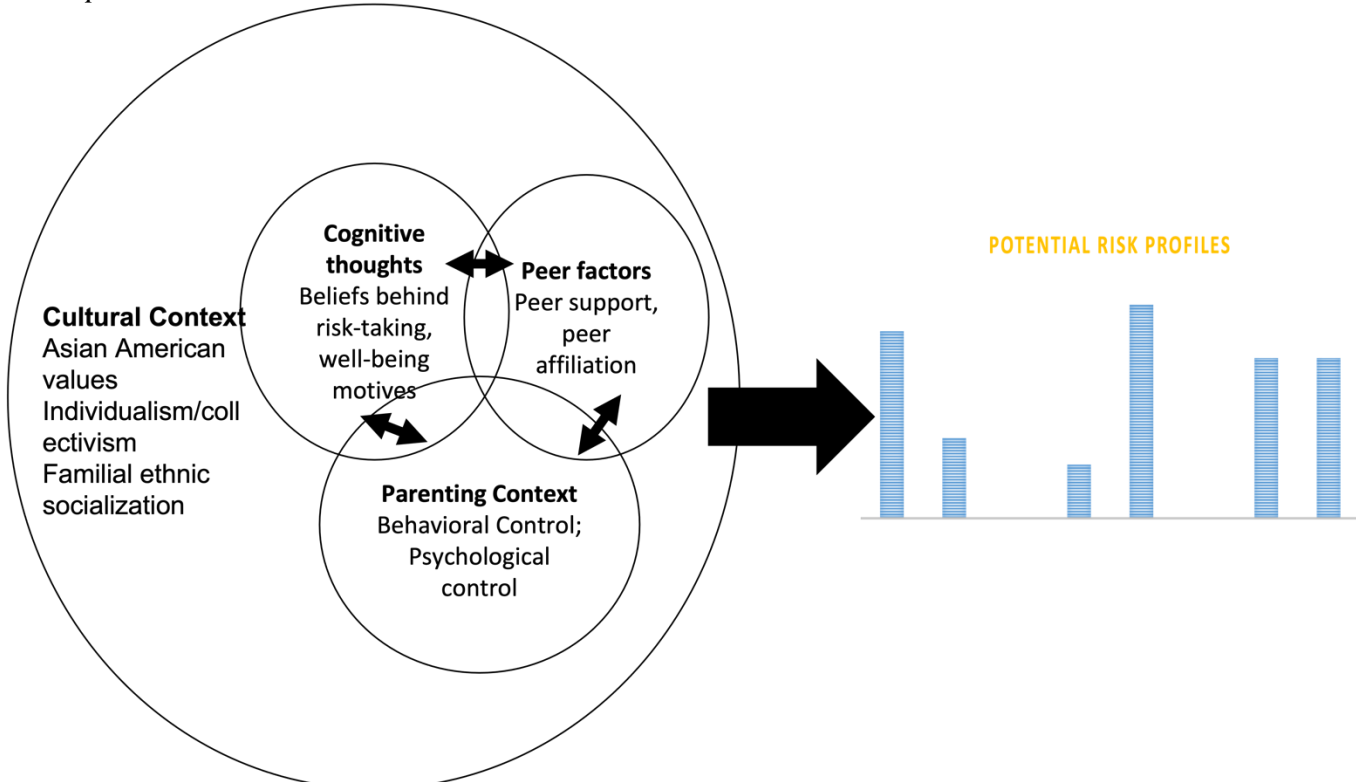
Note. OR (SE) = Odds ratio and standard error. 95% confidence intervals (CI) were utilized to determine statistical significance. Bolded values were determined to be significant based on a confidence interval that does not cross 1.00.

Table 15
Multinomial logistic regression: cultural covariates

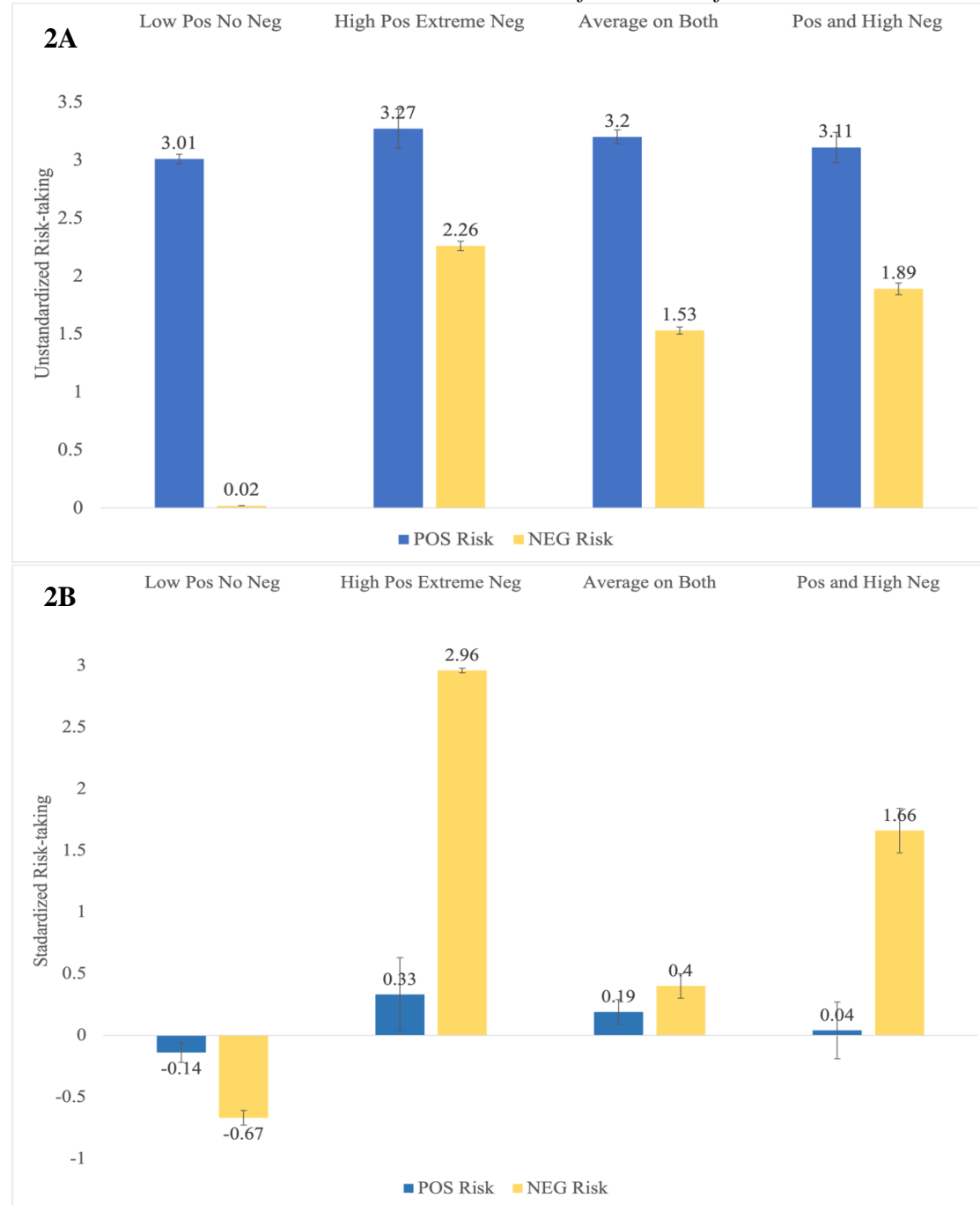
| | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
|----------------|-----------------------------|------------------|------------------------------|-------------------|-----------------------------|------------------|------------------------------|------------------|----------------------------|----------------|------------------------------|-------------------|
| <i>Model 5</i> | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI |
| Asian American | .58 (.18) | .33-1.05 | 2.50 (1.91) | .56-11.18 | 2.40 (1.44) | .74-7.75 | .23 (.18) | .05-1.03 | .24 (.13) | .09-.70 | 1.04 (1.01) | .16-6.96 |
| | Profile 1 v. Profile 3 | | Profile 2 v. Profile 3 | | Profile 4 v. Profile 3 | | Profile 1 v. Profile 2 | | Profile 1 v. Profile 4 | | Profile 2 v. Profile 4 | |
| <i>Model 6</i> | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI | <i>OR</i> (<i>SE</i>) | 95% CI |
| Asian American | .85 (.32) | .40-1.76 | 6.19 (7.33) | .61-63.13 | 2.64 (2.30) | .48-14.56 | .14 (.16) | .01-1.41 | .32 (.24) | .07-1.43 | 2.34 (3.64) | .11-49.29 |
| IND | .96 (.16) | .70-1.34 | 1.07 (.41) | .50-2.28 | 1.85 (.44) | 1.16-2.95 | .90 (.36) | .41-1.99 | .52 (.12) | .33-.82 | .58 (.26) | .24-1.41 |
| COL | .95 (.16) | .68-1.32 | .33 (.11) | .17-.63 | 1.21 (.33) | .63-2.01 | 2.90 (1.00) | 1.48-5.68 | .85 (.23) | .49-1.46 | .29 (.13) | .13-.68 |
| AAVAL | .97 (.26) | .57-1.65 | 3.55 (1.92) | 1.23-10.22 | .63 (.28) | .26-1.50 | .27 (.15) | .10-.78 | 1.54 (.60) | .71-3.32 | 5.64 (3.72) | 1.55-20.56 |
| FAMES | 1.62 (.29) | 1.13-2.31 | 1.01 (.51) | .37-2.71 | 1.36 (.44) | .72-2.55 | 1.61 (.81) | .60-4.30 | 1.19 (.33) | .69-2.06 | .74 (.45) | .23-2.41 |

Note. OR (SE) = Odds ratio and standard error. 95% confidence intervals (CI) were utilized to determine statistical significance. Bolded values were determined to be significant based on a confidence interval that does not cross 1.00. Some variables were abbreviated. Asian American was a categorical variable (1 = Asian American, 2 = Non-Asian American). Individualistic orientation was abbreviated as IND, collectivistic orientation was abbreviated as COL, and Asian American values was abbreviated as AAVAL. Familial ethnic socialization was abbreviated as FAMES.

Figure 1
Conceptual Model



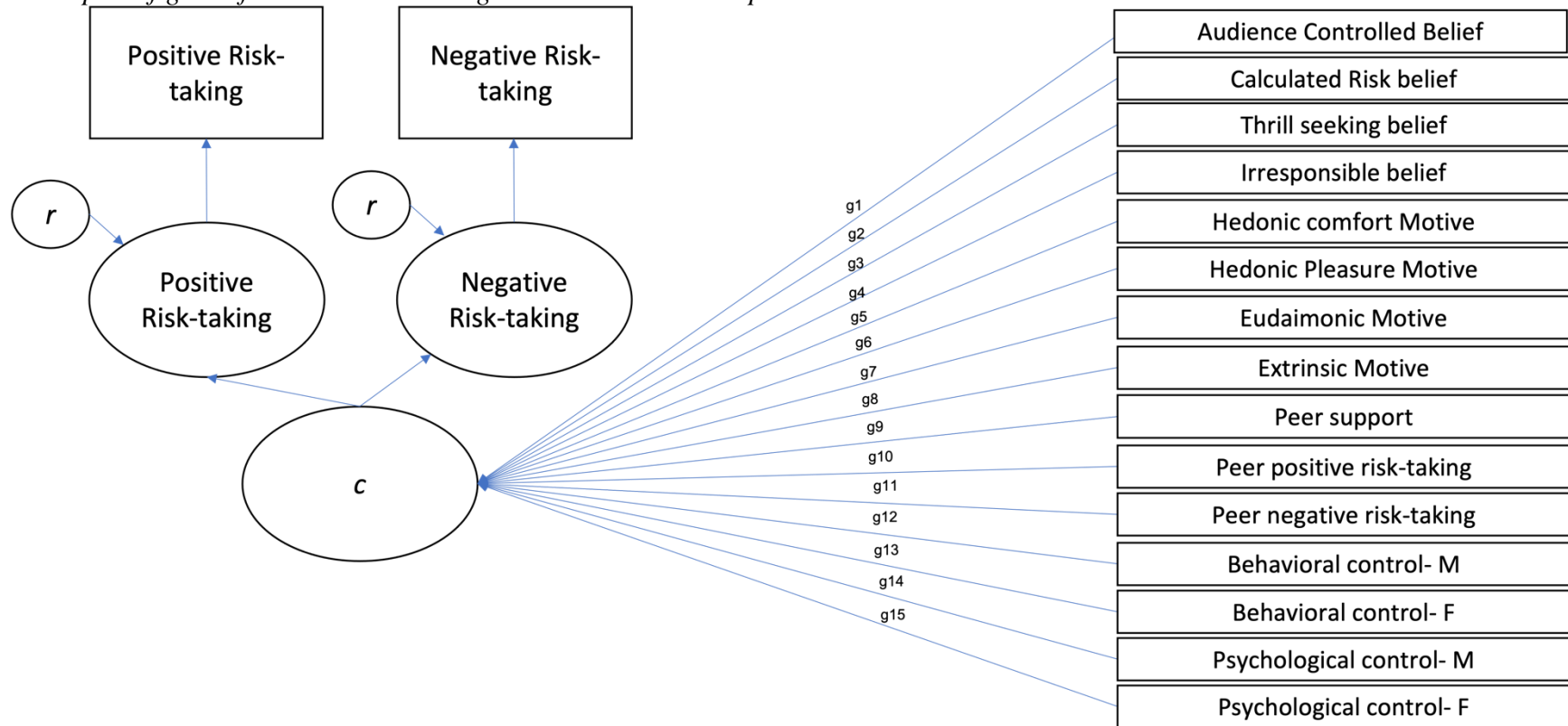
Note. Included risk profiles are hypothetical profiles.

Figure 2*Unstandardized Means and Standardized Means of Latent Profiles*

Note. Figure 2A shows unstandardized mean in the indicators of positive and negative risk-taking for the four-profile solution. Figure 2B describes standardized means in the indicators of positive and negative risk-taking for the four-profile solution. Positive risk-taking was abbreviated as POS risk. Negative risk-taking was abbreviated as NEG risk. $n_{profile\ 1} = 225$, $n_{profile\ 2} = 12$, $n_{profile\ 3} = 132$, $n_{profile\ 4} = 32$.

Figure 3

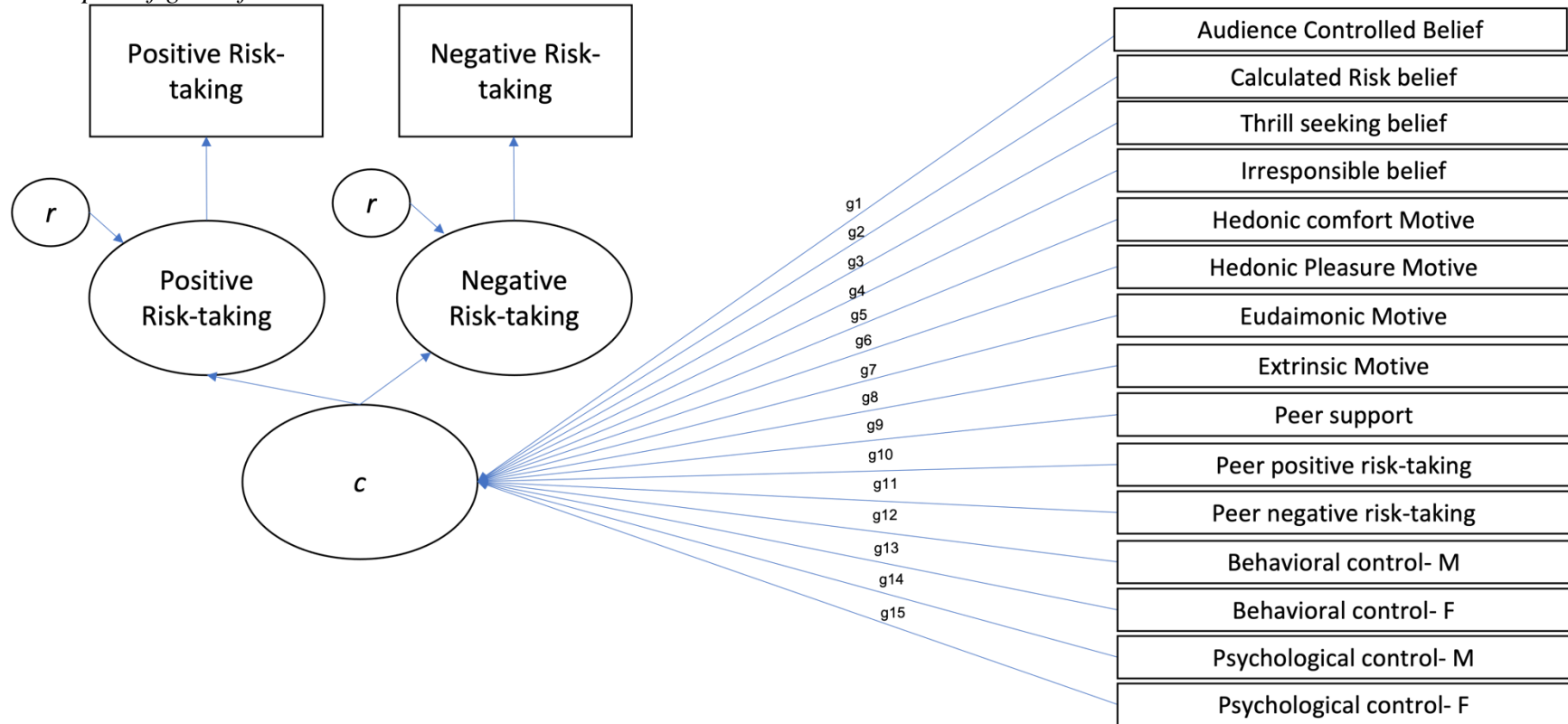
Conceptual figure of LPA model with cognitive values and interpersonal covariates



Note. c = profiles, r = errors, g = regression weight of the covariate on the latent construct. Mother related variables are abbreviated as M. Father related variables are abbreviated as F.

Figure 4

Conceptual figure of LPA model with cultural covariates



Note. c = profile, r= errors, g=regression weight of the covariate on the latent construct.

Appendix A

Positive risk-taking

Here is a list of different things **you** may have done at some time in the past. For each one, please indicate whether **you** have ever done it, and, if so, how many times **you** have done it in the **past 6 months**.

| | Never | Rarely | Sometimes | Very often | Always |
|---|-------|--------|-----------|------------|--------|
| 1. Applied for a job, project or participated in a competition when you were not sure you would be selected | | | | | |
| 2. Joined a new club or activity when you were not sure you would like it | | | | | |
| 3. Told someone the truth, even if they did not want to hear it | | | | | |
| 4. Tried a new food you thought you might not like | | | | | |
| 5. Run for a leadership role in school / at work/ or in some other organization | | | | | |
| 6. Asked someone new on a date when you thought the person may say no | | | | | |
| 7. Started learning something that you knew nothing about or that seemed challenging | | | | | |
| 8. Tried a new hairstyle or outfit that you were not sure others would like | | | | | |
| 9. Gone to a party or social event where you did not know very many people and thought you might not have anyone to talk with | | | | | |
| 10. Told a secret or shared something personal about yourself to someone | | | | | |
| 11. Stood up for what you believe is right, even though you thought someone might disagree with you | | | | | |
| 12. Started a friendship with someone new when you were not sure how others would react | | | | | |
| 13. Tried a new sport or played a sport you are not good at where you might have embarrassed yourself | | | | | |
| 14. Spent time with a new group of people when you were not sure you would fit in | | | | | |

Negative risk-taking

Here is a list of different things **you** may have done at some time in the past. For each one, please indicate whether **you** have ever done it, and, if so, how many times **you** have done it in the **past 6 months**.

| | Never | Rarely | Sometimes | Very often | Always |
|--|-------|--------|-----------|------------|--------|
| 1. Smoking cigarettes | | | | | |
| 2. Motorbike, car or quad racing | | | | | |
| 3. Fast car driving | | | | | |
| 4. Vandalizing | | | | | |
| 5. Gambling | | | | | |
| 6. Bungee jumping, parachuting | | | | | |
| 7. Using hard drugs | | | | | |
| 8. Exceeding the speed limit | | | | | |
| 9. Fast motorbike or quad riding | | | | | |
| 10. Entering private property without permission | | | | | |
| 11. Online hate speech | | | | | |
| 12. Drinking alcohol | | | | | |
| 13. Threatening someone | | | | | |
| 14. Stealing, shoplifting | | | | | |
| 15. Getting drunk | | | | | |
| 16. Extreme biking | | | | | |
| 17. Smoking marijuana | | | | | |
| 18. Diving headfirst | | | | | |
| 19. Getting into a fight | | | | | |
| 20. Driving without license | | | | | |
| 21. Disturbing the peace, rioting | | | | | |
| 22. Driving under the influence of alcohol or drugs | | | | | |
| 23. Spending time in the company of people who break the law | | | | | |

Beliefs behind risk-taking

Please carefully read the following statements and rate the degree to which you agree or disagree with each statement using the scale below:

| | Disagree totally | Somewhat disagree | Somewhat agree | Agree totally |
|--|---------------------|----------------------|-------------------|------------------|
| I don't know how to stay away from these things | | | | |
| This way I can impress others | | | | |
| I don't care even if I regret it later | | | | |
| It gives me a kick (thrill) | | | | |
| I love to live for the moment | | | | |
| It gives me the courage to try new things | | | | |
| It makes others care for me | | | | |
| I believe that it won't hurt me at all | | | | |
| To feel the excitement is wonderful (| | | | |
| It is important just to enjoy the present | | | | |
| I think it is important to achieve goals in the future | | | | |
| I get the attention of others | | | | |
| When I'm taking risks I don't think anything can go wrong | | | | |
| It is thrilling | | | | |
| Even though I may have to pay a price it's important for me to live for the moment | | | | |
| Having new experiences makes me happy | | | | |
| I enjoy acting cool | | | | |
| Most of the time I don't believe that I might get hurt | | | | |
| It makes my heart beat faster | | | | |
| I don't want to miss enjoying the experience | | | | |
| I want to achieve goals that can lead to future successes | | | | |
| It is important for me to be popular | | | | |
| I hate being careful | | | | |

| | | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Seeking to take it easy? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking relaxation? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking to have things comfortable? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking prestige and status? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking to be admired and well-known? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking power and dominance? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking to be popular and have an attractive social image? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Seeking to have wealth and nice possessions? | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Peer support

Here are some things that people may do when they have a problem at school, work, or at home. Read each one and select a number (from 1 to 5) to show how much you do this when you have a problem.

| | How much do you do this when you have a problem? | | | | |
|--|--|-----------------------|-----------------------|-----------------------|-----------------------|
| | 1 (Never) | 2 | 3 | 4 | 5 (Always) |
| I discuss my feelings with my friend. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I get emotional support from my friend. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I get sympathy and understanding from my friend. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I talk to my friend about how I feel. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Peer positive risky behavior

Here is a list of different things **your close friend** may have done at some time in the past. For each one, please indicate whether **your close friend** has ever done it, and, if so, how many times **your close friend** has done it in the **past 6 months**.

| | Never | Rarely | Sometimes | Very often | Always |
|---|-------|--------|-----------|------------|--------|
| 1. Applied for a job, project or participated in a competition when you were not sure you would be selected | | | | | |
| 2. Joined a new club or activity when you were not sure you would like it | | | | | |
| 3. Told someone the truth, even if they did not want to hear it | | | | | |
| 4. Tried a new food you thought you might not like | | | | | |
| 5. Run for a leadership role in school / at work/ or in some other organization | | | | | |
| 6. Asked someone new on a date when you thought the person may say no | | | | | |
| 7. Started learning something that you knew nothing about or that seemed challenging | | | | | |
| 8. Tried a new hairstyle or outfit that you were not sure others would like | | | | | |

9. Gone to a party or social event where you did not know very many people and thought you might not have anyone to talk with
 10. Told a secret or shared something personal about yourself to someone
 11. Stood up for what you believe is right, even though you thought someone might disagree with you
 12. Started a friendship with someone new when you were not sure how others would react
 13. Tried a new sport or played a sport you are not good at where you might have embarrassed yourself
 14. Spent time with a new group of people when you were not sure you would fit in
-

Peer negative risky behavior

Here is a list of different things **you** may have done at some time in the past. For each one, please indicate whether **you** have ever done it, and, if so, how many times **you** have done it in the **past 6 months**.

| | Never | Rarely | Sometimes | Very often | Always |
|--|-------|--------|-----------|------------|--------|
| 1. Smoking cigarettes | | | | | |
| 2. Motorbike, car or quad racing | | | | | |
| 3. Fast car driving | | | | | |
| 4. Vandalizing | | | | | |
| 5. Gambling | | | | | |
| 6. Bungee jumping, parachuting | | | | | |
| 7. Using hard drugs | | | | | |
| 8. Exceeding the speed limit | | | | | |
| 9. Fast motorbike or quad riding | | | | | |
| 10. Entering private property without permission | | | | | |
| 11. Online hate speech | | | | | |
| 12. Drinking alcohol | | | | | |
| 13. Threatening someone | | | | | |
| 14. Stealing, shoplifting | | | | | |
| 15. Getting drunk | | | | | |
| 16. Extreme biking | | | | | |

17. Smoking marijuana
 18. Diving headfirst
 19. Getting into a fight
 20. Driving without license
 21. Disturbing the peace, rioting
 22. Driving under the influence of alcohol or drugs
 23. Spending time in the company of people who break the law
-

Parental psychological control

Each of the following statements ask about your feelings about your MOTHER/MOTHER-FIGURE.

| | Not liker her | Sometime like hers | A lot like her |
|---|---------------------|-----------------------|----------------|
| Changes the subject, whenever I have something to say | | | |
| Finishes my sentences whenever I talk | | | |
| Often interrupts me | | | |
| Acts like she knows what I'm thinking or feeling | | | |
| Would like to be able to tell me how to feel or think about things all the time | | | |
| Is always trying to change how I feel or think about things | | | |
| Blames me for other family member's problems | | | |
| Brings up my past mistakes when she criticizes me | | | |
| Tells me that I am not a loyal or good member of the family | | | |
| Tells me of all the things she has done for me | | | |
| Says, I really cared about her I would not do things that cause her to worry | | | |
| Is less friendly with me, if I do not see things her way | | | |
| Will avoid looking at me when I have disappointed her | | | |

If I have hurt her feelings, stops talking to me until I please her again
 Often changes her moods when with me
 Goes back and forth between being warm and critical toward me

Parental behavior control

Each of the following statements ask about your feelings about your MOTHER/MOTHER-FIGURE.

1= Not at all like her 2 3 4 5 = A lot like her

My MOTHER tries to set rules about what I do with my free time”

My MOTHER knows what I spend money on?

My MOTHER tries to tell me what I can and can’t do on nights and weekends”

My MOTHER knows where you go when you are out with friends.

My MOTHER knows when you have exams or papers due at school.

Individualism/collectivism measure

Rate the extent of each statement reflects your values (1= strongly disagree to 7=strongly agree).

1= Strongly disagree 2 3 4 5 6 7=Strongly agree

I’d rather depend on myself than others

I rely on myself most of the time; I rarely rely on others.

I often do “my own thing.”

My personal identity independent of others, is very important to me

It is important that I do my job better than others.

Winning is everything

Competition is the law of nature

When another person does better than I do, I get tense and aroused

If a coworker gets a prize, I would feel proud

The well-being of my coworker is important to me

To me, pleasure is spending time with others

I feel good when I cooperate with others

Parents and children must stay together as much as possible

It is my duty to take care of my family, even when I have to sacrifice what I want.

Family members should stick together, no matter what sacrifices are required

It is important to me that I
respect the decisions made
by my groups

Asian American values

Please rate (between 1 and 7) how much you agree with the following items. (1 = Strongly disagree 7 = Strongly agree)

Collectivism

1. The welfare of the group should be put before that of the individual.
2. One's efforts should be directed toward maintaining the well-being of the group first and the individual second.
3. One's personal needs should be second to the needs of the group.
4. The needs of the community should supercede those of the individual.
5. One need not always consider the needs of the group first.
6. One need not sacrifice oneself for the benefit of the group.

Conformity to norms

1. One should recognize and adhere to the social expectations, norms, and practices.
2. One should adhere to the values, beliefs, and behaviors that one's society considers normal and acceptable.
3. Conforming to norms provides one with identity.
4. One need not blend in with society.
5. Conforming to norms is the safest path to travel.
6. Conforming to norms provides order in the community.
7. One should not do something that is outside of the norm.

Emotional self-control

1. It is better to show emotions than to suffer quietly.
2. One should be expressive with one's feelings.
3. Openly expressing one's emotions is a sign of strength.
4. It is better to hold one's emotions inside than to burden others by expressing them.
5. It is more important to behave appropriately than to act on what one is feeling.
6. One should not express strong emotions.
7. One's emotional needs are less important than fulfilling one's responsibilities.
8. One should not act based on emotions.

Family recognition through achievement

1. One should achieve academically since it reflects on one's family.
2. Succeeding occupationally is an important way of making one's family proud.
3. Getting into a good school reflects well on one's family.
4. Failing academically brings shame to one's family.
5. One should go as far as one can academically and professionally on behalf of one's family.
6. One's academic and occupational reputation reflects the family's reputation.
7. Academic achievement should be highly valued among family members.
8. One's achievement and status reflect on the whole family.
9. Making achievements is an important way to show one's appreciation for one's family.
10. One's educational success is a sign of personal and familial character.

11. One should work hard so that one won't be a disappointment to one's family.
12. It is one's duty to bring praise through achievement to one's family.
13. Receiving awards for excellence need not reflect well on one's family.
14. Children's achievements need not bring honor to their parents.

Humility

1. One should be able to brag about one's achievements.
2. One should be able to boast about one's achievement.
3. One should not sing one's own praises.
4. One should not openly talk about one's accomplishments.
5. One should be able to draw attention to one's accomplishments.
6. Being boastful should not be a sign of one's weakness and insecurity.

Emotional self-control

1. It is better to show emotions than to suffer quietly.
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4. It is better to hold one's emotions inside than to burden others by expressing them.
5. It is more important to behave appropriately than to act on what one is feeling.
6. One should not express strong emotions.
7. One's emotional needs are less important than fulfilling one's responsibilities.
8. One should not act based on emotions.

Familial ethnic socialization

Please rate (between 1 and 5) how much you agree with each of the following items.

1= Not at all 2 3 4 5 = Very
m u c h

My family teaches me about my ethnic/cultural background.

My family encourages me to respect the cultural values and beliefs of our ethnic/cultural background.

My family participates in activities that are specific to my ethnic group.

Our home is decorated with things that reflect my ethnic/cultural background.

The people who my family hangs out with the most are people who share the same ethnic background as my family.

My family teaches me about the values and beliefs of our ethnic/cultural background.

My family talks about how important it is to know about my ethnic/cultural background.

My family celebrates holidays that are specific to my ethnic/cultural background.

My family teaches me about the history of my ethnic/cultural background.

My family listens to music sung or played by artists from my ethnic/cultural background.

My family attends things
such as concerts, plays,
festivals, or other events
that represent my
ethnic/cultural background.

My family feels a strong
attachment to our
ethnic/cultural background.

Appendix B

The measures of negative risk taking, negative risk-taking of peers, behavior control of fathers, psychological control of mothers and fathers were positively skewed. Log transformations were conducted for the measure of behavioral control of fathers. Inverse transformations were conducted for eudaimonic well-being and psychological control of mothers and fathers. However, for the measure of psychological control of fathers, the inverse transformations did not fix the skewness entirely ($Z_{skewness} = -4.29$). The measures of eudaimonic well-being, calculated beliefs, and peer support were negatively skewed. All negatively skewed scales were reflected prior to computing transformation and reflected once more for ease of interpretation. Square root transformations were applied to measures of eudaimonic well-being, hedonic well-being pleasure, and peer support. Log transformations were conducted on measures of calculated beliefs. Inverse transformations were conducted to measures of negative risk-taking and negative risk-taking of peers (see Table 5).

On the other hand, kurtosis issues were found within several transformed variables (peers support, negative risk-taking, behavioral control of fathers, psychological control of mothers and fathers (see Table 5). Because skewness assumption is more important than the kurtosis assumption (Hopkins & Weeks, 1990), no further transformations were conducted on variables.