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**Impact of Cultural Perceptions of Education on Mental Health Outcomes Among Asian
and Asian American Students**

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Undergraduate Honors Psychology Thesis

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Abstract

Many Asian countries are greatly influenced by Confucianism and are labelled Confucian Heritage Culture (CHC) countries (Tan & Yates, 2010). Confucianism incorporates teachings of filial piety, respect for elders, emphasis of social values, benevolence, and the importance of education ("Confucius"; Stanford Encyclopedia of Philosophy, 2021). In CHC countries and other Asian countries like India, bringing honor and pride to one's family is highly valued. In India, bringing honor to one's family through obtaining a career with a higher salary could be perceived as a form of duty to one's family. These values are taught and emphasized at an early age, which later becomes internalized as one's own (Gupta & Tracey, 2005). Among CHC countries, academic achievement is perceived as the responsibility of the child and is also a symbol of pride for the family (Wong et al., 2005; Yeh & Huang, 1996). Past studies have found that students in Confucian Heritage Culture (CHC) countries such as China, Taiwan, Singapore, Hong Kong, Japan, and Korea demonstrate high amounts of academic stress, depressive and anxiety symptoms, and low self-esteem (Genshaft & Broyles, 1991; McGuire & Mitic 1987; Tan & Yates, 2010; Lee, 2015).

Despite these findings, there is a gap in research examining the relationship between cultural influences and beliefs on mental health outcomes of the Asian population. Therefore, the present study examined the relationship between Asian cultural values on attitudes towards academic achievement and mental health status. The present study also examined whether COVID-19 may exacerbate stress related to academic achievement for Asian and Asian American students. This study used a survey research methodology and recruited participants from Western Michigan University who were Asian International and Asian American students (age 18 and older). The results demonstrated some significant associations between Asian cultural values and attitudes toward academic achievement. However, there was no significant

relationship found between Asian cultural values on mental health status. Similarly, COVID-19 did not seem to exacerbate stress related to academic achievement for Asian and Asian American students. Through additional analyses, the results demonstrated a relationship between academic stress and mental health status, and a relationship between pandemic-related stress with mental health status as well.

Overall, some of the findings in the present study were aligned with past literature. For example, we found that higher levels of Asian cultural values were associated with high levels of stress related to academic expectations (Genshaft & Broyles, 1991; McGuire & Mitic, 1987; Tan and Yates, 2010). However, the study had several limitations such as a small sample size, methodology used, and social and environmental influences that could be confounding variables. Future studies should extend this research by using a predictive model instead of only bivariate analyses. Findings from this study was beneficial to increase the awareness of cultural value influences on mental health status for the Asian population.

Cultural perceptions of education among Asian Communities

Many Asian countries such as Singapore, China, Taiwan and Hong Kong are greatly influenced by Confucianism and are labeled Confucian Heritage Culture (CHC) countries (Tan & Yates, 2010). Confucianism incorporates teachings of filial piety, respect for elders, emphasis of social values, benevolence, and the importance of education ("Confucius"; Stanford Encyclopedia of Philosophy, 2021). Past studies have found that those values and teachings have shaped many of the beliefs that are still prevalent in Asian societies (Huang & Gove, 2015; Jinguo, Smyth & Hwee, 2000; Lin, Swanson & Rogge, 2021; Tan & Yates, 2010).

Confucianism has influenced parenting practices surrounding education and social behaviors. For instance, a qualitative study conducted by Huang and Gove (2015) found that common Confucianism values reported among the East-Asian participants included: benevolence, filial piety, education, family hierarchy and family harmony. The four main themes analyzed from the responses collected through individual interviews and focus group sessions included: (1) Confucianism impact (the generational impact of Confucianism on Chinese culture and parenting, especially in education and social behaviors), (2) demandingness as expectations (parents' demands become their own expectations for their child while disregarding whether or not their child has the abilities to meet their demands and expectation), (3) responsiveness to academic needs (the degree to which the parent responds to the child's academic needs and extracurricular interests), and (4) interests, and balance between expectations and responsiveness (the balance between the high expectations that the parents set for their children and their responsiveness to their children's needs and interests). Overall, the study found that Confucius values are highly prioritized by Asian parents and are deeply embedded in their children.

Among CHC countries, academic achievement is perceived as the responsibility of the child and is also a symbol of pride for the family and reputation ('face') for the child (Wong et

al., 2005; Yeh & Huang, 1996). For example, in China, a nine-year education is compulsory for all its citizens (Qian Kan, 2019). Much of these years are invested in preparing for the “gaokao” or the National College Entrance Examination (Kirkpatrick & Zang, 2011). Thus, middle school and high school students often do not have time to explore and participate in extra-curricular activities due to their hectic and rigorous academic schedule. For these students, the tests are a way for them to prove their worth. Additionally, the exam-oriented education system serves as a filtering process for the students who are truly ‘worthy’ to attend higher education institutes (Kirkpatrick & Zang, 2011).

In relation to the academic pressures, past studies have found that adolescent students in Confucian Heritage Culture (CHC) countries such as China, Taiwan, Singapore, Hong Kong, Japan and Korea demonstrate high amounts of academic stress (Genshaft & Broyles 1991; McGuire & Mitic 1987; Tan & Yates, 2010). According to Tan and Yates (2010), some potential factors that can contribute to the pressure and stress for Singaporean students include being streamed (the practice of placing students with others with comparable skills or needs, as in classes or in groups within a class) based on their academic performance for high school and college and having their career prospects be highly influenced by their academic achievements. In the Singaporean education system, students are 'streamed' into different high school academic trajectories based on their past exam results. Different streams lead to different end-of-secondary exams and thus lead to different types of tertiary institutes for which a student can apply. Due to the significant influence of exam results in their future, test-taking is a high-stakes event for Singaporean students leading to high levels of academic stress (Tan & Yates, 2010).

In addition, Deb et al., (2015) found that about 65% of Indian students in their sample group reported stress caused by academic pressure. In India, the education system has

increasingly become more competitive as the population continues to expand which results in students facing academic pressure as early as age three to six (Rentala et al., 2019). Moreover, the Indian education system emphasizes the importance of obtaining high marks rather than acquiring and applying the knowledge. Unfortunately, this causes students to be overwhelmed by the academic workload and thus leading to academic stress for Indian students (Sonali, 2016).

These high academic standards may be related to the concept of dharma, which has significant influence in Indian culture, and is linked to one's social responsibilities of career and family obligation. Gupta and Tracey (2005) found that Indian Americans chose fields that were more favorable and accepted by their parents and engaged less in career exploration compared to their White counterparts. For example, bringing honor to one's family through obtaining a career with a higher salary could be perceived as a form of duty to one's family. These values are taught and emphasized at an early age, which later becomes internalized as one's own (Gupta & Tracey, 2005). Generally, Confucian values prioritize academic excellence and the notion that only consistent effort and hard work can produce fruitful results. Confucian beliefs also include emphasizing that the effort parents put on their child's education and learning will be reflected in the child's academic success. Indeed, students' Grade Point Average tends to increase as their parents have a higher level of satisfaction with their child's major and college admission (Cho & Cho, 2019).

Another Confucian value that is highly emphasized in CHC countries is filial piety. Filial piety is a concept that is more present in East Asian culture, however this concept and values that come with it are also present in South Asian culture (Sarma, 2014). In the South Asian context, the term *dharma*, translating to "one's duty", is used and stems from Hindu ideology (Gupta & Tracey, 2005). The concept of dharma outlines the roles and responsibilities that an individual

should hold in a self-in-relation-to-other context. Every member of the family is familiar with their specific roles as their dharmic duties have been described in scriptures. These duties and scriptures have been passed down from previous generations through oral and written traditions. For example, the main responsibility of an Indian child is to bring honor to their family name/reputation through academic success (Gupta & Tracey, 2005).

A study conducted by Oh and Kim (2015) compared social class and ethnic effects in an academic paradox. The academic paradox refers to an inverse relationship between levels of achievement and students' perceptions of their success. The study found that for Korean and other "successful" Asian ethnicities, Asian cultural scholars associate high academic achievement with a strong work ethic across all social class strata. Past research assumed that this could be linked to how Asian American parents across socio-economic classes emphasize the importance of education than other racial/ethnic counterparts which included white Americans, Latinos and Europeans (Louie, 2009). Some factors that could influence this link include parental expectations (e.g., cultural norms of success), elder and peer ethnic expectations, perceptions of self-worth, achievement and success, as well as emotional dynamics and support (Oh & Kim, 2015). This norm manifests from the constant reminder that Asian immigrant parents tell their children that their academic achievement is a badge of honor and symbolizes the entire cultural group's reputation (Kim, 1993). Hence, there is an assumption that those who do not overachieve are bringing shame not only to their family but to their entire ethnic group (Kim, 1993).

First and second generation Asian American students' perception related to education

The Asian American student experience is undoubtedly different from a Native Asian one when it comes to the cultural context that influences the perception of education. In Western culture, the Asian community is stereotypically labeled as the “model minority” (Lee, 2015). The ‘model minority’ stereotype cultivated a high-achieving peer culture that became the norm among the Asian American community (Lee, 2015). ‘Model minority’ was initially used to label Chinese Americans but was then extended to other Asian ethnic groups. The ‘model minority’ term has a multi-layer definition. The first being that Asians as a minority race are different from the White majority but are still considered “acceptable” by the majority race. This is problematic because this perception disguises the accounts and experiences of racism and discrimination that Asians face. The second meaning is that Asians are a model of ‘proper behaviors and attitudes’ for other minority races (Li, 2005)

The ‘model minority’ stereotype adds pressure for people of Asian descent to perform academically (Li, 2005). This results in the parents having “education fever” which refers to a strong commitment to ensure that their child performs in alignment with the parent’s academic expectations. Some behaviors of this education fever include constantly comparing their child’s academic success to other children or being hyper-focused on their child’s performance (e.g., test scores; Li, 2005). This norm, added with societal and parental expectations, decreases the students’ self-esteem when they fail to meet expectations and begin to doubt their academic competency (Lee, 2015).

A possible explanation for why Asian American students experience low self-esteem with high achievements could be due to the misalignment of personal expectations of their academic performance in comparison to their actual academic performance (Bray, 2001). This

could result in bigger academic setbacks when their academic achievements do not match their own expectations/high standards. In addition, the ‘model minority’ myth fails to recognize the evidence of Asian underachievement, increasing dropout rate and the effects of the socio-economic gap on academic performance (Li, 2005; NECS, 2004). This lack of recognition would explain the gap in self-esteem levels between Asians and their non-Asian counterparts (Kim et al., 2008; Leung & Wong, 1997; Oh & Kim, 2015). Second generation Asian immigrants perceive themselves as failures and incompetent when they do not meet the high educational expectations imposed by their parents (Lee, 2015).

Although there is a juxtaposition between the self-perceived academic success of Asian American students and their actual academic success, their academic achievements can be attributed to two principles. The first is the stress of filial piety and the second is the belief in the efficacy that hard work and effort yields promising results. In turn, children may feel that the only way they can repay their debts to their parents and to bring their family honor (part of the Confucian ethic influence) is through their academic achievements (Butterfield, 1986; McGrath, 1983; Oxnam, 1986).

Implications of academic pressure and cultural perspectives

Asian cultural perceptions of education have led to positive and negative outcomes. For example, Asian cultures have a stronger belief that effort leads to achievement compared to western cultures (Hsin & Xie, 2014). Asian ethnic groups were also found to have an academic advantage compared to their White counterparts due to increased academic effort, rather than differences in cognitive ability (Hsin & Xie, 2014). This demonstrates that increased academic

effort that manifests from Asian cultural perceptions can lead to academic advantages for Asian students compared to their peers.

Asian academic excellence may be attributed to the high aspirations set by their parents and the tight-knit parent-child connection. Asakawa and Csikszentmihalyi (2000) found that students with a stronger perceived bond with their parents are more likely to internalize their values and are more willing to accept their expectations and aspirations. Chen and Ho (2012) also found that perceived parental involvement is related to student's academic achievements, and that the two aforementioned variables are mediated by the students' personal academic beliefs (beliefs about effort equating to success, perceived control, academic self-concept, etc.).

Despite the benefits, Asian cultural perceptions of education have also led to increased academic pressures which can result in negative outcomes. For instance, a study conducted by Qu and colleagues (2021) examined the negative outcomes that school-related problems (such as academic performance) have on Chinese American adolescents and their parents. The researchers found that the adolescents' school problems predicted lower levels of happiness and higher levels of distress and total cortisol output for the adolescents compared to their baseline data. Furthermore, students who identified more with their Asian culture were found to be more susceptible to these negative outcomes as a result of the school problems.

Moreover, research has found that as parental sacrifice (e.g., material, emotional and financial sacrifices) of Asian American parents for their children increased, this in turn was found to increase the influences of Confucianism on their children such as filial piety (Oh and Kim, 2015). For instance, students reported that parental beliefs and engagement in hypercompetitive comparison is common between them, children of other ethnicities, and also children within their own ethnicity (Rodriguez, 2007). These expectations were extremely

difficult to fulfill and resulted in an immense amount of pressure for Asian American students to overachieve, “repay” their parents, and increase the family’s reputation.

Additionally, the concept of authoritarian filial piety has been found to impact obedience to role obligations based on the family hierarchy. It entails suppressing one's own wishes to comply with one's parents' wishes because of their seniority (Bedford & Yeh, 2019). Yeh (2003) found that these students likely obey their parent’s request due to obligation and the power hierarchy. A subsequent study conducted by Yeh (2006) proposes that since authoritarian filial piety is characterized by submission to hierarchical authority and the suppression of self-autonomy, the effects of authoritarian filial piety are generally harmful, such as higher perceived depression, anxiety, and aggression. Overall, past studies suggest that Asian students’ academic excellence could be a result of high expectations they set for themselves (Bray, 2001) that are strongly associated with their close-knit relationship with their parents (Yeh, 2003).

Similarly, in Hong Kong, students frequently reported that a major contributor to their stress is their personal desire to excel and satisfy their parents’ expectations (Tan & Yates, 2010). A review by Kirkpatrick and Zang (2011) about the negative influences of exam-oriented education on Chinese high school students, discussed the ways that the Chinese education system results in negative consequences for the students. Consequences of this education system included insufficient psychological development, repressed personality, self-hatred, and a general lack in development of other abilities. The researchers concluded that moderate pressure to excel and less emphasis on high-stakes exams, can better motivate students and improve their academic achievement and psychological well-being.

Students' self-esteem is also greatly affected due to academic pressure and the norms of their respective cultures. Data from the National Longitudinal Study of Adolescent Health (Harris et al., 1995) show that Asian adolescents reported the lowest levels of self-esteem but with the highest grade point averages compared to their White and Black counterparts. Children of immigrant parents do specifically encounter problems with self-esteem, but they still tend to do better in school, arguably because of their immigrant background. In particular, some factors that were associated with low-esteem and academic success included authoritarian style of parents, low levels of encouragement and expectation for independent behavior of the child, as well as family's socioeconomic status. Additionally, first generation Asian American students are likely to experience insecurities and self-doubt as the 'newcomers' or 'outsiders' (Bankston & Zhou, 2006).

Other factors that could influence Asian students' self-esteem include parental involvement and parental investment. Ho (2003) conducted a study to identify the most influential factors that affect parental involvement and how parental effort influences children's self-esteem in Asian educational systems. Parental involvement was shown to positively affect their children's self-esteem, specifically home-based involvement. Home-based involvement includes learning support provided by the parents to the children, supervising their children's homework, providing an ideal study environment, expanding their children's learning experiences such as going to museums, and being concerned with their children's study progress. Results suggest that socioeconomic status is likely to affect parental involvement, investment, and ability to provide educational resources for their children's education. Furthermore, the results demonstrated that cultural and economic resources provided by the family to the child are highly associated with the child's self-esteem. Through integrating resources from home (e.g.,

study aides, parental involvement, learning support) and from school, parents and teachers can cooperatively increase the child's self-esteem.

Anxiety and depressive symptoms associated with academic pressure

Academic pressure has been found to increase symptoms of depression and anxiety, as well as increase potential negative outcomes of test-taking and performance anxiety (Sarason, 1978; Rappleye & Komatsu, 2018; Zhang et al., 2011). Dion and Toner (1988) examined whether there were ethnic differences in test-taking anxiety. Results showed that Chinese students scored significantly higher in the Test Anxiety Scale than their Western counterparts. This indicated that compared to their Western counterparts, Chinese and Asian students demonstrate higher levels of academic success but also higher levels of psychological stress. (Dion & Toner, 1988). Due to higher levels of test anxiety, exam rituals in East Asia are a common practice among students to cope with the intense exam stress. Some of these rituals include not showering so that their "luck won't be washed away", eating KitKat chocolate bars before an exam, and wearing red underwear (Rappleye & Komatsu, 2018).

Depressive symptoms are also prevalent among students in East Asia and Confucian-Heritage-Countries. Additionally, depressive mood symptoms have been associated with school refusal (Yun et al., 2019). Students in Hong Kong reported the highest prevalence of depression compared to students in Macau and China (Li et al., 2020). Researchers hypothesized that the influences of Western culture and lifestyle conflicting with traditional Chinese values and culture could explain the difference of depression prevalence between these three regions. With students in Hong Kong and Macau being more affected by Western influences, these conflicting cultural values could contribute to the increased risk of depression. For example, acceptance of mental

health issues is far greater in Western countries than in Chinese societies (Li et al., 2020). As shown through prior research above, many students in CHC countries report higher rates of depression and anxiety compared to their Western counterparts. It has also been shown that students in these countries reported lower rates of self-esteem (Aryana, 2010; Ho, 2003). Thus, there appears to be a correlation as well between depression, anxiety, and self-esteem. Choi et al. (2019) hypothesized that self-esteem levels may affect social interactions, perception of social support and stress resilience for participants with Mild Depressive symptoms and that self-esteem levels may be an indicator of depression. The researchers also found that self-esteem levels were strongly associated with the development of depression.

In addition, comorbid symptoms of anxiety and depression are another consequence of the academic pressure Asian students face. Parental involvement is positively correlated with higher academic expectations for the child (Tan & Yates, 2010), and parental warmth or affection is also likely included in that involvement. One study found that parental warmth generally decreased the association between parental-induced academic pressure and symptoms of anxiety and depression that the child faced. (Quach et al, 2015). The study tested maternal and paternal warmth separately, and found that maternal warmth was positively associated with depression and anxiety while paternal emotional support decreased academic stress and anxiety symptoms of children. This suggests that adolescents perceived their mother to exert greater academic pressure than their fathers. This further suggests that maternal warmth increases the child's perception of their responsibility to fulfill filial piety. Therefore, the child may experience greater distress when given more maternal warmth because of the desire to not disappoint their mother. Additionally, academic pressure imposed by parents was positively associated with adolescent depression and anxiety (Quach et al., 2015). As parental-induced academic pressure

increased, the children were more likely to develop symptoms of depression, anxiety, or comorbid symptoms.

Nguyen et al. (2013) found that depression was the strongest predictor of suicidal ideation, anxiety and depression were the strongest reasons for suicidal attempts when examining a sample of high school students from grade 10 through 12 in Vietnam. Furthermore, low self-esteem, which was positively correlated with educational-related stress, contributes to higher risks of developing anxiety, depression and suicidal ideation (Nguyen et al., 2019). Even more concerning is that many adolescents may not seek support and help from their friends or family when they do experience symptoms of depression, anxiety, and suicidal ideation (Nguyen et al., 2013). A possible explanation for this is rooted in Chinese and other Asian cultures of having mental health and psychological difficulties be a mark of shame (Hesketh et al., 2001)

Mental Health Stigma

Culture can influence mental illness in terms of the public and personal perceptions of mental illness, experience of symptoms, recognition and labeling, decisions regarding treatment, and course (Kleinman, 1977). Mental health stigma refers to negative attitudes and beliefs that motivate individuals to fear, reject, avoid, and discriminate against people with mental illness (Rüsch et al., 2005). Understanding the issues of mental illness stigma is important for prevention, early detection, and community treatment of psychiatric disorders (Corrigan et al. 2005; Thornicroft et al. 2008). Confucianism values the avoidance of emotions to preserve social harmony (Tseng, 1973); thus, countries that are influenced by Confucianism beliefs tend to stigmatize mental health to a higher degree than other countries (Ng, 1997).

Asian societies tend to be more collectivistic while Western societies tend to be more individualistic (Robson, 2017). Papadopoulos et al. (2012) found that collectivistic cultures are correlated with more stigmatizing beliefs about mental health concerns. Contrastingly, individualistic cultures are correlated with less stigmatizing beliefs. Collectivist cultures are more likely to be 'high-context' meaning that relationships and group harmony are highly valued. Therefore, conformity is the norm and highly encouraged. Mental health concerns are easily perceived to be outside of the norm and are not tolerated well by collectivist cultures. On the other hand, people from individualistic cultures are more likely to tolerate diversity and deviations from the norm as they value personal goals and growth over group achievement. Hence, this could explain why Asian societies stigmatize mental health concerns to a higher degree compared to Western societies (Papadopoulos et al., 2012).

Several studies (Pang et al., 2017; Yoshioka et al., 2016) support Papadopoulos et al.'s (2012) findings that collectivist societies tend to heavily stigmatize mental health concerns. Pang et al. (2017) investigated the perceptions of mental health conditions and the stigma associated with mental health concerns among Singaporean youth. The study found that almost half of the participants used negative words that are associated with mental health. Almost half said that they would be embarrassed if they were diagnosed with a mental health condition, and about a quarter reported that they would not want others to know about their mental health. These results suggest that the Singaporean youth perceive mental health concerns as shameful and thus perpetuates the stigma surrounding it.

In Japan, data suggest that the public is more readily able to accept physical causal explanations of mental health concerns, such as mental illness being caused by a virus, allergy, or a genetic condition. Moreover, through a survey-based study, Japanese respondents

demonstrated weak-not-sick stigma towards people with depression when they perceive it to be caused by stress (e.g., childhood trauma, stress, death of a loved one). This suggests that there is a certain degree of awareness around psychosocial risk factors of depression, however, the stigmatizing attitude of perceiving people with depression as weak rather than struggling with a health condition is still significant (Yoshioka et al., 2016).

Psychological impact of COVID-19 among Asian students, Asian American students and international students

The current COVID-19 pandemic is also suspected to potentially impact academic performance and overall well-being among students particularly Asian, Asian American, and international students. The pandemic itself has impacted these group of students. In addition, anti-Asian racism, violence, and xenophobia directed towards them have negatively impacted their mental health (Misra et al., 2020).

University students reported higher levels of anxiety than the general population during the COVID-19 outbreak in China (Wang & Zhao, 2020). According to the findings, university students experienced higher levels of anxiety during the COVID-19 outbreak than university students who experienced the H1N1 and SARS outbreak. Another factor that could influence this is the increase in information accessibility compared to when the SARS and H1N1 outbreaks happened in the early 2000s. News reports and social media postings related to the COVID-19 pandemic could exacerbate depression, stress, and anxiety (Wang & Zhao, 2020).

These findings were similarly reported in countries other than China. For example, university students in Malaysia also reported high levels of anxiety during the height of the covid-19 pandemic (April and May of 2020). The study specifically found that the lower

classmen, between the ages of 17 to 18, were more anxious compared to the upperclassmen. This difference could be attributed to how the lowerclassmen are more engaged with online news coverage, social media platforms, etc. compared to the upperclassmen. Furthermore, university students who were staying alone experienced higher levels of anxiety compared to students staying with friends or family. Based on student reports, a few major stressors that they had in common were financial concerns, concerns about online learning, and uncertainty about their careers/future due to the COVID-19 lockdowns (Sundarasan et al., 2020).

Asian international students also experienced an increase in levels of stress and anxiety as a result of COVID-19. The students that remained in the country where their institution is located, had higher levels of stress surrounding personal health and lack of social support compared to students who returned to their home country during the pandemic.

Asian and Asian Americans have also experienced an increase in discrimination during the period of COVID-19. To preface how COVID-19 could have a significant impact for Asians, an understanding of stigmatization and discrimination towards Asians is needed. Several factors that contributed to the stigmatization include fear of infection, differences in food culture (especially for Wuhan residents), and differences in mask-wearing affected Chinese citizens who were overseas. Mask-wearing is much more common in Asian societies than in Western Societies. Hence, Chinese citizens who wore masks and were in Western countries were perceived as potential carriers of COVID-19 and were discriminated against (Xu et al., 2021).

For instance, Asian international students have reported discrimination and isolation because they were perceived to be potential COVID-19 carriers while studying in the United Kingdom (UK) and United States (US; Lai et al., 2020). However, Asian American students reported significantly higher levels of discrimination compared to Asian immigrants and Asian

international students. Asian Americans likely experience more distress due to being perceived as ‘foreigners’ in their home country because of their race. Moreover, the American identity threat experienced by Asian Americans have been significantly associated with psychological distress (Ong et al. 2013).

Moreover, Asian hate crimes dominated news media and was a serious concern for the Asian community in the US (Shen et al., 2020). Overt COVID-19 stigmatization towards Chinese and Asians in the US seems to be motivated by personal health concerns and other contributing factors such as economic anxiety, resentment of the Chinese and the Chinese government in the US. Overall, the study found that Asian Americans have the highest predicted probability of experiencing stigmatization due to COVID-19 compared to Asian immigrant, Black, White, and White Hispanic/Latino individuals. Additionally, individuals who report experiencing stigmatization have been found to be more likely to report psychological distress (Shen et al., 2020). The COVID-19 pandemic has shown that ethnoracial status could significantly impact psychological distress and disease stigma and poses an issue for people of Asian descent, including students, who have been scapegoated for the virus (Cheng et al., 2021).

Summary and present study aims

Due to the values and principles embedded in Asian cultures, which directly influence the education system and the perception of academic success, research suggests Asian students are more likely to experience higher levels of stress in academia (Tan & Yates, 2010). As a result of the academic pressure, Asian and Asian American students may face negative mental health outcomes such as depressive and anxiety symptoms as well as lower self-esteem (Lee, 2015). Thus, the present study aims to examine the relationship between Asian cultural values on

attitudes towards academic achievement and mental health status. In addition, given stress experienced by Asian individuals as result of the recent COVID-19 pandemic, the present study also aims to examine whether COVID-19 may exacerbate stress related to academic achievement for Asian and Asian American students. Overall, there is a gap in research examining ways that cultural influences and beliefs affect the mental health of the Asian population, hence, this study aims to help fill that gap.

Participants

Asian and Asian American students (ages 18 and older) from the Western Michigan University (WMU) community were recruited through announcements from Registered Student Organizations (RSO). Specifically, the student investigator sent a flyer about the study to RSO's serving Asian students, and the RSO leaders then sent the flyer to their members. The flyer contained a QR code to access the survey. Registered Student Organizations who were contacted include: The Alliance of Filipino American Students, Asian Pacific American Student Association, Indian Student Association, Indonesian Students Association, Japan Club, Bangladesh Student Association, Malaysian Students' Association, Sigma Psi Zeta Asian Sorority, Taiwanese Student Association, and The Chinese Students & Scholars Association. In addition, participants were recruited through the Lee Honors College weekly email newsletter, and classes whereby psychology and engineering faculty members shared information about the study with undergraduate students.

Based on student racial demographic data found through WMU's Institutional Research website, the total number of undergraduate and graduate students enrolled in the university was

16,643 as of the Spring 2022 semester. Asian students made up approximately 2.1% of the WMU student population which was about 350 students.

Demographic data for the participants are profiled in Table 1. Among the participant sample ($n=50$), 64% of respondents identified as female followed by 34% as male and 2% as agender. The participant sample was majority Chinese (26%), followed by Malaysian (18%), Indian (14%), Indonesian (10%), Bangladeshi (8%), Filipino (6%), Vietnamese (4%), Korean (4%), Pakistani (4%), Taiwanese (2%), and Turkish (2%). Among the sample, majority of the respondents identified as Asian (84%), followed by Asian American (12%) and more than one race (4%). The majority (82%) of participants were undergraduate students and the remainder (18%) were graduate students.

Procedures

Interested individuals who accessed the QR code were directed to the consent form for the study. If the individual consented to participate in the study, they were directed to a demographics form which assessed gender, race, ethnicity, age, enrollment status at Western Michigan University, and education level (see appendix A). Participants then completed nine measures related to the study variables (see below). Completion of all study measures took approximately 30 minutes.

Participants who completed the study were asked to provide their email addresses on a separate link if they were interested in being added to a raffle to win one of the thirty, \$25 amazon gift cards. All participants were also provided with the opportunity to receive credit for research participation if permitted by their course instructor. Email addresses were documented on an excel sheet in a secure folder on a secured online server. The collected email addresses

were assigned an identification number. Thirty identification numbers were randomly chosen to win the gift cards. These numbers were then traced back to the email addresses of the participants, and the winners were contacted through their email to notify them that they won an electronic gift card. For those who were interested in receiving extra credit, the researcher provided confirmation of the student participation to their instructor.

Measures

Asian Values Measures

The Revised Asian Values Scale (see appendix B) is a revision of the 36-item Asian Values Scale which now includes 25 items and uses a 4-point Likert-type scale (1 = “strongly disagree,” to 4 = “strongly agree”). This scale is used to measure individual association with Asian cultural values such as collectivism, conformity to norms, emotional self-control, family recognition through achievement, filial piety, and humility. The revised scale is highly correlated ($r = .93$) with the original version and has been found to have good internal consistency ($\alpha = .81$; (Kim & Hong, 2004).

The Internalization of Asian American Stereotypes Scale (IRAAS; see appendix C) is a 23-item scale with each item being scored from a range of 1 to 6 (1 = “strongly disagree,” to 6 = “strongly agree”). This scale is used to measure the degree to which Asian Americans internalize hostile attitudes and negative messages targeted toward their racial identity. This scale has been found to predict depressive symptoms and is correlated with self-esteem, which provides evidence for the validity of the measure (Choi et al., 2017).

Academic Stress Measures

The Academic Expectations Stress Inventory (AESI; see appendix D) is a 9-item scale that measures expectations as a source of academic stress in middle and high school Asian students. The scale has two factors: Expectations of Parents/Teachers (five items) and Expectations of Self (four items). Scores are recorded on a 5-point Likert scale (1 = “never,” to 5 = “always”). Higher scores indicate higher perceived academic stress. The measure is used to assess the specific role of students’ expectations and their supervisors’ expectations (parents or teachers) in producing or exacerbating academic stress. The measure has good internal consistency ($\alpha = 0.90$). In addition, during a 2-week examination, the scale has been found to demonstrate a test-retest reliability of 0.85, 0.79 and 0.77 for the total score, supervisors’ expectations subscale, and self-expectations subscale respectively (An & Huan, 2006).

The Perceptions of Living up to Parental Expectations Inventory (see appendix E) is a 27-item scale to measure the extent to which an individual believes that they meet their parents’ expectations (Wang & Heppner, 2002). The current study will only be using 9 out of the 27 items that are related to academic expectations. Scores are recorded on a 5-point Likert scale (1 = “not at all/never,” to 5 = “very often/ very much so”). Higher scores correspond to a higher degree of perceived unfulfillment of parental expectations by the individual. The scale has good internal consistency ($\alpha = 0.90$) as well as a moderate to high level of test-retest reliability after a 2-week examination period (Sasikala & Karunanidhi, 2011).

Mental Health Measures

The GAD-7 (see appendix F) consists of seven items measuring worry and anxiety symptoms. Each item is scored on a four-point Likert scale with total scores ranging from 0 to 21. Higher scores indicate more severe anxiety symptoms and scores above 10 reflect severity in

the clinical range (Spitzer et al., 2006). The GAD-7 has a Cronbach's alpha of 0.89 and has demonstrated convergent validity (Kroenke et al., 2007; Löwe et al., 2008).

The Westside Test Anxiety Scale (see appendix G) is a 10-item scale used to identify students with anxiety symptoms that could influence their test taking performance. The scale has an average correlation of $r = 0.44$, between anxiety reduction on the Westside scale and changes in test performance. Furthermore, reductions in anxiety found with the scale have been found to be strongly correlated with test gains (Driscoll, 2004).

The PHQ-9 (see appendix H) is a 9-item scale measuring depressive symptoms relating to the diagnostic criteria for major depressive disorder. Each item is scored on a four-point Likert scale, with higher scores reflecting greater depression severity. Scores above 10 are considered to be in the depressive range. The PHQ-9 has a Cronbach's alpha 0.81, sensitivity of 88% and a specificity of 88% for detecting major depression. (Kroenke et al., 2001).

The Rosenberg Self-Esteem Scale (see appendix I) is a 10-item scale that assesses self-worth by measuring both positive and negative feelings about one's self. Items are answered using a 4-point Likert scale ("strongly agree" to "strongly disagree." Internal consistency of the scale ranges from 0.77 to 0.88, with a criterion validity of 0.55, and a test-retest correlation in the range of 0.82 to 0.88 (Sinclair et al., 2010)

COVID-19 Stress Measure

The Pandemic Adversity Measure (see appendix J) is a 32-item questionnaire that measures psychosocial adversity in several domains related to COVID-19. For the current study, the measure was revised to only include 22 questions that would be relevant to students. Validation of this measure is currently in progress. This scale quantifies hardship by creating a Total Adversity score across financial, home, work/business, health, and social domains. The

current study will only include questions in the financial, home, and health domains. Total scores range from 0 to 50. Internal consistency scores were not calculated because items are scored categorically and are not expected to correlate meaningfully (Kroska et al., 2020).

Analyses

Descriptive statistics were used to analyze demographic results, and frequency distributions were used to summarize the survey data. Additionally, bivariate analyses were used to examine the relations between Asian cultural values, attitudes towards academic achievement, and mental health status. Correlations between stress related to academic achievement and COVID-19 were also examined using bivariate analyses.

Results

Aim 1, Examining the relationship between Asian cultural values and attitudes toward academic achievement. The ‘Revised Asian Values Scale’ (RAV) and ‘Internalization of Asian American Stereotype Scale’ (IAASS) were used to assess the degree of adoption of Asian cultural values. The ‘Perceptions of Living up to Parental Expectations Inventory’ (PEI) and ‘Academic Expectations Stress Inventory’ (AESI) were used to assess attitudes towards academic achievement. The RAV demonstrated a significant and positive correlation ($r = 0.35, p = 0.02$) with the AESI, indicating that higher scores on adherence to Asian cultural values were correlated with higher levels of stress related to academic expectations. However, the RAV was not associated with the PEI. The IAASS also demonstrated a significant and positive correlation ($r = 0.36, p = 0.01$) with the PEI. Thus, participants with higher reported internalizations of Asian American stereotypes reported higher degree of perception that they were living up to

parental expectations. However, there were no significant associations between the IAASS and the AESI.

Aim 2, Examining the relationship between Asian cultural values on mental health status.

The ‘Revised Asian Values Scale’ (RAV) and ‘Internalization of Asian American Stereotype Scale’ (IAASS) were used to assess the degree of adoption of Asian cultural values. The ‘Generalized Anxiety Disorder-7’ (GAD-7), ‘Westside Test Anxiety Scale’ (WTAS), ‘Patient Health Questionnaire’ (PHQ-9) and ‘Rosenberg Self-Esteem Scale’ (RSS) were used to assess mental well-being. There were no significant associations between the measures of Asian cultural values and measures of mental health status.

Additional Analyses. We also examined the relationship of academic stress to mental health. We used the AESI and the PEI as indicators of academic stress and the GAD-7, WTAS, PHQ-9 and RSS as indicators of mental health. We found that the PEI was negatively associated with the WTAS ($r = -0.25, p = 0.09$) such that participants with lower levels of perceptions of living up to their parental expectations scored higher on test anxiety. Additionally, the AESI was positively correlated with the PHQ-9 ($r = 0.313, p = 0.029$) and the GAD-7 ($r = 0.347, p = 0.015$). Thus, higher levels of stress related to academic expectations were correlated with higher levels of depression and anxiety. There were no significant associations between the indicators of academic stress and self-esteem.

Aim 3, Examining whether COVID-19 may exacerbate stress related to academic achievement for Asian and Asian American students. The Pandemic Adversity Measure (PAM) measures hardships in different domains related to the pandemic. The ‘Perceptions of Living up to Parental Expectations Inventory’ (PEI) and ‘Academic Expectations Stress Inventory’ (AESI) were used to assess attitudes towards academic achievement. There were no significant

associations between the PAM and the measures assessing academic stress (the PEI and AESI).

Additional Analyses. We also examined whether COVID-19 related stress was associated with mental health symptoms. We used the PAM to assess COVID-19 related stress. In addition, we used the ‘Generalized Anxiety Disorder-7’ (GAD-7), ‘Westside Test Anxiety Scale’ (WTAS), ‘Patient Health Questionnaire’ (PHQ-9) and ‘Rosenberg Self-Esteem Scale’ (RSS) assess mental health status. The PAM had a statistically significant positive correlation with the WTAS ($r = 0.46, p = < 0.01$), indicating that higher levels of adversity faced during the COVID-19 pandemic was associated with higher scores of test anxiety. There were also statistically significant positive correlations between the PAM and the PHQ-9 ($r = 0.41, p = < 0.01$), as well as the GAD-7 ($r = 0.44, p = < 0.01$), indicating that higher levels of adversity experienced during the pandemic were correlated with higher levels of depression and anxiety. There was no significant association between the PAM and the RSS.

Discussion

Asian cultures have deeply rooted values and principles that have significantly shaped their societies (Tan & Yates, 2010). Some of these include Confucian principles such as filial piety, the concept of ‘dharma’, collectivistic values, and much more. The present study examined ways that cultural influences and beliefs can influence attitudes towards academic achievement and affect the mental health of the Asian population in a population of college students at a one midwestern university. In this sample, higher alignment with Asian cultural values was associated with higher levels of stress related to academic expectations. These results are consistent with findings by Genshaft and Broyles (1991), McGuire and Mitic (1987), and Tan and Yates (2010), who found that students in Confucian Heritage Culture countries like China,

Singapore, Hong Kong, and Korea exhibited high levels of academic related stress. The results from examining the first aim also suggested that a higher degree of internalized racial stereotypes of Asian Americans was correlated with a stronger perception that participants were living up to parental expectations. In several Asian countries, specifically those categorized as Confucian Heritage Culture countries, academic achievement is seen as a form of filial piety and a symbol of pride to represent the entire family (Wong et al., 2005; Yeh & Huang, 1996). In the Asian American community, the 'model minority' stereotype has fostered a high-achieving peer culture that increases pressure for people of Asian descent to excel academically. Higher conformity to racial stereotypes such as the 'model minority' stereotype may lead to higher alignment with parent's academic expectations (Li, 2005).

The next aim of the study was to examine the relationship between Asian cultural values on mental health status. We did not find any association between these two variables. A potential explanation for this could be due to the small sample size of this study that may not have accurately captured the associations that previous studies have found (Li et al., 2020; Aryana, 2010; Ho, 2003). Furthermore, a study that evaluated the cultural influences on the mental health of Asian Americans found that Asian participants tend to describe psychological distress in the form of physical complaints (Kramer et al., 2002). However, we also examined the relation between academic stress and mental health and found that participants who reported lower levels of perceptions of living up to their parental expectations, had higher levels of test anxiety. Given that it is possible that social and parental expectations to excel academically can decrease self-esteem when expectations are not fulfilled, which further leads to doubt surrounding academic competency (Lee, 2015). Furthermore, we also found significant positive associations between stress levels related to academic expectations and levels of depression and anxiety. These results

were consistent with previous research which found that parental-induced academic pressure increases prevalence of depression, anxiety, or comorbid symptoms (Quach et al., 2015).

Academic pressure has also been found to increase symptoms of depression, and performance anxiety (Rappleye & Komatsu, 2018; Zhang et al., 2011)

The last aim of the study was to examine whether the COVID-19 pandemic may exacerbate stress related to academic achievement. We did not find any association between adversities experienced related to the pandemic and stress related to academic achievement. A possible reason for this could be that other concerns such as financial concerns, concerns about distanced learning and career uncertainties (Sundarassen et al., 2020) were much more significant and overshadowed any stress related to academic achievement. Though, we still found significant association between pandemic-related adversities experienced and an overall decrease in mental health status, specifically in depression and anxiety levels. Throughout the pandemic, students of Asian descent experienced higher levels of anxiety compared to the general population and compared to the pre-pandemic period (Wang & Zhao, 2020; Sundarassen et al., 2020). Additional contributing factors could include the discrimination and stigmatization that the Asian population faced (Xu et al., 2021; Cheng et al., 2021). Asian individuals who reported higher levels of stigmatization were more likely to report higher levels of psychological distress (Shen et al., 2020).

Study Limitations. The results of the present study contribute to the discussion of mental health among Asian cultures by highlighting the relationship between the values and principles common in Asian cultures, attitudes towards academic achievement, and mental health status. However, there are several limitations to this study. First, the study has a small sample size, consisting of undergraduate and graduate students from only one university. Future studies need

to extend the range of sampling to different academic institutions, possibly even in different countries, to increase the external validity of the findings. In addition, the study used a survey research methodology consisting of only self-reported measures; thus, self-report bias could be present when evaluating perceptions such as the perception of living up to parental expectations. Extended research in this area should also consider the degree of influence that participants of Asian descent who are multiracial and mixed ethnicity may have. Social and environmental influences on cultural values in their home country that is different from their native Asian origin could be a confounding variable. In addition, future research should examine the variables in a predictive model to determine which variables have the greatest predictive ability when examining the outcomes of stress and mental health. Overall, the findings from the present study can be beneficial in increasing the awareness and understanding of how cultural values can influence mental health status among the Asian population.

Table 1*Sociodemographic Characteristics of the Participants*

Sample Characteristics	Frequency (n)	Percentage (%)
Gender		
Women	32	64
Men	17	34
Agender	1	2
Race		
Asian	42	84
Asian American	6	12
More than one race	2	4
Ethnicity		
Chinese	13	26
Malaysian	9	18
Indian	7	14
Indonesian	5	10
Bangladeshi	4	8
Filipino	3	6
Vietnamese	2	4
Korean	2	4
Pakistani	2	4
Taiwanese	1	2
Turkish	1	2

More than one ethnicity	1	2
University status		
Undergraduate student	41	82
Graduate student	9	18

Note. N = 50

Correlations

	RAV	IAASS	AESI	PEI	GAD7	WTAS	PHQ9	RSS	PAM
<i>Asian Values Measures</i>									
RAV	1								
IAASS	.260	1							
<i>Academic Stress Measures</i>									
AESI	.346*	.253	1						
PEI	-.013	.362*	.198	1					
<i>Mental Health Measures</i>									
GAD7	-.107	.153	.347*	-.112	1				
WTAS	-.032	.203	.016	-.245	.326*	1			
PHQ9	.128	.226	.313*	-.082	.853**	.255	1		
RSS	-.172	-.010	.038	.118	.117	-.309*	-.132	1	
<i>COVID-19 Stress Measure</i>									
PAM	.034	.304*	.123	.131	.439**	.456**	.405**	.008	1

*. Correlation is significant at the 0.05 level (2 tailed).

**. Correlation is significant at the 0.01 level (2 tailed).

N ranges from 48 – 50.

Appendices

Appendix A: Demographics Survey

ID: _____ Date: ____/____/____

1. Gender:
 - 1 = Woman
 - 2 = Man
 - 3 = non-binary
 - 4 = Other - self describe: _____
 - 5 = Prefer not to answer
2. Would you describe yourself as transgender?
 - 1 = Yes
 - 2 = No
 - 3 = Prefer not to answer
3. Race: *(Please mark one)*
 - 1 = Asian
 - 2 = Asian American
 - 3 = Pacific Islander
 - 4 = White
 - 5 = Black or African-American
 - 6 = Native American/Alaska Native
 - 7 = more than one race
 - 8 = Other
 - Please specify: _____
 - 9 = Prefer not to answer
4. Are you Hispanic or Latinx? Yes No
5. Ethnicity: *(Please mark one)*
 - 1 = Chinese
 - 2 = Indian
 - 3 = Filipino
 - 4 = Vietnamese
 - 5 = Korean
 - 6 = Japanese
 - 7 = Pakistani
 - 8 = Cambodian
 - 9 = Hmong
 - 10 = Laotian
 - 11 = Thai
 - 12 = Burmese
 - 13 = Indonesian
 - 14 = Bangladeshi
 - 15 = Taiwanese

16 = Malaysian

17 = Other

Please specify: _____

18 = Prefer not to answer

6. Age: _____

7. Are you a student at Western Michigan University?

1 = Yes

2 = No

8. What is your educational level? (*Please circle one*)

1 = Grade school

5 = College graduate

2 = Some high school

6 = Current graduate student

3 = High school graduate

7 = Other - Please specify:

4 = Current undergraduate student

Appendix B: Revised Asian Values Scale

Instructions: Please read through each of the following item and rate the extent to which you agree or disagree with each item using the rating scale provided: scale of 1 to 7 (Strongly disagree, Moderately disagree, Mildly disagree, Neither agree nor disagree, mildly agree, moderately agree, strongly agree)

1. One should not deviate from familial and social norms.
2. Children should not place their parents in retirement homes.
3. One need not focus all energies on one's studies.
4. One should be discouraged from talking about one's accomplishments.
5. Younger persons should be able to confront their elders.
6. When one receives a gift, one should reciprocate with a gift of equal or greater value.
7. One need not achieve academically in order to make one's parents proud.
8. One need not minimize or depreciate one's own achievements.
9. One should consider the needs of others before considering one's own needs.
10. Educational and career achievements need not be one's top priority.
11. One should think about one's group before oneself.
12. One should be able to question a person in an authority position.
13. Modesty is an important quality for a person.
14. One's achievements should be viewed as family's achievements.
15. One should avoid bringing displeasure to one's ancestors.
16. One should have sufficient inner resources to resolve emotional problems.
17. The worst thing one can do is to bring disgrace to one's family reputation.

18. One need not remain reserved and tranquil.
19. One should be humble and modest.
20. Family's reputation is not the primary social concern.
21. One need not be able to resolve psychological problems on one's own.
22. Occupational failure does not bring shame to the family.
23. One need not follow the role expectations (gender, family hierarchy) of one's family.
24. One should not make waves.
25. One need not control one's expression of emotions.

Appendix C: Internalization of Asian American Stereotype Scale

THE INTERNALIZATION OF ASIAN AMERICAN STEREOTYPE SCALE

Instructions: Please read through each of the following items, and indicate the degree that each item pertains to you and your experiences.

	1 Strongly Disagree	2 Disagree	3 Slightly Disagree	4 Slightly Agree	5 Agree	6 Strongly Agree
1. I feel I do not express my emotions as openly as my non-Asian peers do.	1	2	3	4	5	6
2. As an Asian/Asian American, I expect myself to achieve more academically than students from other racial groups.	1	2	3	4	5	6
3. I am comfortable showing my emotions in public.	1	2	3	4	5	6
4. As an Asian/Asian American, I feel that it would be difficult for me to enter a career not in a math, science, or technical-related field.	1	2	3	4	5	6
5. As an Asian/Asian American, I feel that I can be successful in a major that requires a lot of reading, writing, and verbal communication in English.	1	2	3	4	5	6
6. I do not care about my academic achievement than my non-Asian peers do.	1	2	3	4	5	6
7. I believe that it is important to keep my feelings to myself.	1	2	3	4	5	6
8. I am expected to perform well in math and science because I'm Asian American.	1	2	3	4	5	6
9. I sometimes feel that my poorer verbal communication skills put me at a disadvantage compared to my White American peers.	1	2	3	4	5	6
10. I am known among my non-Asian peers as being academically successful.	1	2	3	4	5	6
11. I will be happy in a career that I am interested in, even if it does not offer a lot of prestige or money.	1	2	3	4	5	6
12. As an Asian/Asian American, I would choose a major that requires minimal reading, writing, and verbal communication in English.	1	2	3	4	5	6
13. As an Asian/Asian American, I am expected by others to be academically successful.	1	2	3	4	5	6
14. I am as comfortable expressing negative emotions (e.g., anger, sadness, irritation) as my non-Asian peers are.	1	2	3	4	5	6
15. As an Asian/Asian American, others expect me to pursue a career in math and science-related fields.	1	2	3	4	5	6
16. When choosing a career, I do not consider that prestige it would bring me.	1	2	3	4	5	6
17. I won't be happy in a career that does not offer prestige or money.	1	2	3	4	5	6
18. I would be comfortable choosing a major that requires a lot of reading, writing, and verbal communication in English.	1	2	3	4	5	6
19. As an Asian/Asian American, I feel that I can be comfortable with the verbal sections of academic assessment tests than I do with the math and science sections.	1	2	3	4	5	6
20. Salary is one of the most important determining factors when choosing a career.	1	2	3	4	5	6
21. I am not comfortable expressing my feelings to others.	1	2	3	4	5	6
22. Prestige is one of the most important determining factors when choosing a career.	1	2	3	4	5	6
23. As an Asian/Asian American, I would face more difficulty in a career that requires a lot of reading, writing, and verbal communication in English.	1	2	3	4	5	6

Appendix D: The Academic Expectations Stress Inventory

Instructions: Please rate the frequency to which you believe or feel that each item pertains to you using the rating scale provided: (1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always).

1. I blame myself when I cannot live up to my parents' expectations of me
2. I feel I have disappointed my teacher when I do badly in school
3. I feel I have disappointed my parents when I do poorly in school
4. I feel stressed when I know my parents are disappointed in my exam grades
5. I feel lousy when I cannot live up to my teacher's expectations
6. I feel stressed when I do not live up to my own standards
7. When I fail to live up to my own expectations, I feel I am not good enough
8. I usually cannot sleep and worry when I cannot meet the goals I set for myself
9. When do not do as well as I could have in an examination or test, I feel stressed

Appendix E: Perceptions of Living up to Parental Expectations Inventory

(Shortened, originally 27-items)

Instructions: Please rate the extent to which you believe you are currently living up to your parents' expectations for each of the following using the rating scale provided:
1 = not at all/never, 2 = once in a while/ a little, 3 = sometimes/ somewhat, 4 = frequently/ pretty much, 5 = very often/ very much so

I believe I am currently living up to my parents' expectations regarding...

1. having excellent academic performance
2. making others proud of my academic performance
3. studying hard to get a high-paying job in the future
4. performing better than others academically
5. studying at a college/university my parents consider prestigious
6. pursuing a career my parents consider prestigious (e.g., doctor, lawyer, engineer)
7. studying a major in school my parents consider prestigious (e.g., engineering, premedicine)
8. receiving straight A's in my classes
9. getting a degree in an amount of time my parents consider reasonable (e.g., a bachelor's degree in four years or less)

Appendix F: GAD-7

GAD-7 Anxiety

Over the <u>last two weeks</u> , how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Appendix G: Westside test anxiety scale

Rate how true each of the following is of you, from extremely or always true, to not at all or never true. Use the following 5 point scale.

5	4	3	2	1
extremely or always true	highly or usually true	moderately or sometimes true	slightly or seldom true	not at all or never true

- 1) The closer I am to a major exam, the harder it is for me to concentrate on the material.
- 2) When I study, I worry that I will not remember the material on the exam.
- 3) During important exams, I think that I am doing awful or that I may fail.
- 4) I lose focus on important exams, and I cannot remember material that I knew before the exam.
- 5) I finally remember the answer to exam questions after the exam is already over.
- 6) I worry so much before a major exam that I am too worn out to do my best on the exam.
- 7) I feel out of sorts or not really myself when I take important exams.
- 8) I find that my mind sometimes wanders when I am taking important exams.
- 9) After an exam, I worry about whether I did well enough.
- 10) I struggle with writing assignments, or avoid them as long as I can. I feel that whatever I do will not be good enough.

Appendix H: PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

Appendix I: Rosenberg self-esteem scale

Instructions: Please read through each of the following item and indicate the degree that each item pertains to you.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly Disagree

Appendix J: The Pandemic Adversity Measure (Shortened)

Instructions: Please answer the following survey section which involves questions related to your experiences during the COVID-19 pandemic in the following categories: Financial, Home and Health

Financial

<p>Did you struggle to pay your rent, mortgage, utilities, or other necessary shelter-related expenses during the pandemic?</p>	<ul style="list-style-type: none">- Yes (1)- No (0)
<p>Did you receive any assistance from federal, state, or housing authorities (including landlords) to offset difficulties paying for mortgage, rent, or other shelter-related expenses during the pandemic?</p>	<ul style="list-style-type: none">- Yes, and this assistance completely offset my costs. (0)- Yes, but this assistance did not completely offset my costs. (1)- No, I did not receive assistance, but I needed assistance to offset my costs. (1)- No, I did not receive assistance, but I did not need assistance covering my costs. (0)
<p>Did you experience a loss of personal income?</p>	<ul style="list-style-type: none">- Yes (1)- No (0)
<p>Throughout the pandemic, did you at any point <u>not</u> have access to health insurance?</p>	<ul style="list-style-type: none">- Yes, I lost health insurance during the pandemic. (1)- Yes, I did not have access to health insurance before the pandemic. (1)

	<ul style="list-style-type: none"> - No, I had access to health insurance throughout the pandemic. (0)
<p>Were you able to acquire assistance from health insurance or other sources to cover your relevant health expenses during the pandemic (regardless of whether the expenses were related to COVID-19)?</p>	<ul style="list-style-type: none"> - Yes (0) - No (1) - I did not need assistance (0)
<p>Of these difficulties you endorsed, please rank how much these changes <u>in finances</u> interfered with your life.</p>	<ul style="list-style-type: none"> - No Interference (0) - Rare Interference (1) - Some Interference (2) - Frequent Interference (3) - Complete Interference (4)

Home	
<p>Did you feel safe at your home during the pandemic? This includes physical safety and emotional safety.</p>	<ul style="list-style-type: none"> - Yes (0) - No (1)
<p>Did you have difficulties getting groceries or household supplies?</p>	<ul style="list-style-type: none"> - Yes (1) -No (0)

Of these difficulties you endorsed, please rank how much these changes at home interfered with your life.

- No Interference (0)
- Rare Interference (1)
- Some Interference (2)
- Frequent Interference (3)
- Complete Interference (4)

Health	
Did you experience a reduction in physical activity during the pandemic?	- Yes (1) - No (0)
Did you experience difficulty in accessing health care for you or your family because of the pandemic?	- Yes (1) - No (0)
<p>Is anyone close to you (family, friend, close other) considered an at-risk population with respect to COVID-19?</p> <p>This includes people: aged 65 or older, who live in a nursing home or long-term care facility, who are immunocompromised (including those undergoing cancer treatment), with chronic lung disease or moderate-severe asthma, with serious heart conditions, with BMI > 40, or other uncontrolled chronic medical conditions (e.g., diabetes, kidney failure, chronic respiratory illness).</p>	- Yes (1) - No (0)

<p>Are you considered part of an at-risk population with respect to COVID-19?</p> <p>This includes people: aged 65 or older, who live in a nursing home or long-term care facility, who are immunocompromised (including those undergoing cancer treatment), with chronic lung disease or moderate-severe asthma, with serious heart conditions, with BMI > 40, or other uncontrolled chronic medical conditions (e.g., diabetes, kidney failure, chronic respiratory illness).</p>	<p>- Yes (1) - No (0)</p>
<p>Were you physically ill with any ailment during the pandemic?</p>	<p>- Yes (1) - No (0)</p>
<p>Did you exhibit symptoms of COVID-19 following the virus being first identified in the United States (1/22/2020)?</p> <p>The symptoms included fever, shortness of breath, dry cough, and flu-like symptoms.</p>	<p>- Yes (1) - No (0)</p>
<p>Did you see a healthcare provider (physician, nurse practitioner, physician's assistant, or other) for diagnosis and/or treatment of COVID-19, flu, or cold during the pandemic?</p>	<p>- Yes (1) -No (0)</p>
<p>Were you hospitalized during the pandemic?</p>	<p>- Yes (1) -No (0)</p>
<p>Were you medically quarantined to your home at any point?</p>	<p>- Yes (1) - No (0)</p>
<p>Were you directly exposed to someone with COVID-19?</p>	<p>- Yes (1) - No (0)</p>

<p>Were you unable to access mental health care during the pandemic?</p>	<p>- Yes (1) No (0)</p>
<p>Did you choose <u>not</u> to seek healthcare to avoid becoming infected with COVID-19?</p>	<p>- Yes (1) - No (0)</p>
<p>Of these difficulties you endorsed, please rank how much these changes <u>at home</u> interfered with your life.</p>	<p>- No Interference (0) - Rare Interference (1) - Some Interference (2) - Frequent Interference (3) - Complete Interference (4)</p>

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