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College Students' Mental Health Among Different Racial/Ethnic Groups

Junzhi Wei

University of California--San Diego, San Diego, 92093, USA

Abstract. The mental health of college and university students is a vital component of their academic and personal development. This study examines the mental health of college students from various ethnic backgrounds, with a particular focus on Asian international students in U.S. universities, post-pandemic, as they faced difficulties such as distance from home, cultural differences, language barriers, and connectedness to family and friends. In this study, we recruited 32 college-level participants, 25 of whom were Asian or Asian American. Every participant completed two scales, the PERMA-Profiler, which measures overall well-being, and the Mental Health Quality of Life Questionnaire (MHQoL), which assesses mental health quality of life, as well as demographic questions. We found that the higher scores on the PERMA-Profiler were significantly correlated with better mental health in MHQoL. As expected, the mental health scores were affected by the connectedness to family and friends, which was shown by significant differences in PERMA scale but not in MHQoL scale. There was not enough evidence to support our hypothesis that Asian international students would reveal more negative mental health than students from other ethnic backgrounds, for both the PERMA and MHQoL scale. We discuss the implications of our findings, and recommend future directions to include larger sample sizes.

Keywords: College Students; Mental Health; Racial/Ethnic Groups.

1. Introduction

1.1. Motivation for the study

Mental health has always been an important part to consider in the life of college and university students. In college and university, there were many factors intertwined together that could contribute to the positive or negative well-being of students, such as academic stress, interactions with people, relationships, perceived racial discrimination, social isolation, and so on (Sheldon et al., 2021). During the outbreak of the COVID-19 pandemic, mental health issues came into focus, since psychological counseling services were not available, and many students were isolated.

Recent studies indicate that there was an increasing trend for psychological disorders during and after the pandemic than before. In particular, Hispanic, Black, and Asian groups were worse off than students who were from a Caucasian background (Thomeer et al., 2022). However, Trammell et al. (2021) found no differences among students from different ethnicities. Accessibility to mental health counseling centers, and the propensity to get help from these centers could have played a role in the worsening mental health crises. Furthermore, while enrollment and attendance of international students in US universities had recently returned to pre-pandemic levels, the mental health of these students was the concern since international students were reluctant to seek help, and did not get tested for mental health issues (Xiong, 2018).

In essence, there were a considerable number of studies focused on the mental health of college students during and after the outbreak of COVID-19 pandemic, and a few that were focused on students from different cultural backgrounds; there is still a paucity of studies that explored mental health of international students. In the current study, we were interested in international college students' mental health after the pandemic, especially since the class routines and enrollment were back to pre-pandemic levels, and most universities were emphasizing class attendance in person. In particular, we were interested in exploring the mental health of Asian international students. The

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reasons were multifaceted: distance from home, a huge cultural difference, language barriers, the difficulty assimilating into the Western culture, difficulty communicating effectively with teachers and advisors, and paucity of friends (Zhang & Brunton, 2018). We expected that our paper would add to the existing literature, and enrich the research related to the mental health of Asian international students in comparison to other racial groups.

1.2. Background

The mental health of college or university students is a vital aspect of their life on campus. Anecdotally, as well as through research studies, we knew that mental health problems have risen among these students during the COVID-19 pandemic, encompassing the issues such as anxiety, depression, and stress (Lee et al., 2021; Wang et al., 2020; Halliburton et al. 2021). We noted some emerging racial differences in mental health issues (Gopalan et al., 2021; Trammell et al., 2021; Lipson et al., 2022). Particularly, the Asian international students had a tougher situation than other ethnicities: adapting to a foreign educational system, facing language barriers, receiving negative media propaganda, and so on (Zhang & Brunton, 2018; Mbous et al., 2022). These difficulties exacerbated the feelings of isolation and senses of stress and loneliness, which negatively influenced their well-being. The heightened vulnerabilities encountered by the Asian international students in universities or colleges highlighted the need for focused cultural support, and access to support groups on campuses (Lee et al., 2004; Liu et al., 2022).

Our background literature review began with an exploration of studies on mental health among college students, especially during the pandemic and difference between post and pre pandemic. We then explored racial and ethnic disparities in mental health among college students, during and after the pandemic. The next sections described mental health among international students in the US, and mental health of Asian Americans. The final section demonstrated the mental health of Asian students in their own countries.

1.2.1. Mental health among college students

Lee et al.'s (2021) survey on mental health among students in a public research university revealed that a majority (about 63%) of students experienced a moderate level of *stress*. About 25% of students had a *severe stress* level, and a moderate or severe *anxiety disorder*; about 30% of students had moderate level of *depression* and about 6% had *severe depression* (Lee et al., 2021). Thus, during the pandemic, there was a high level of college students having some mental health issues. Wang et al.'s (2020) study at the Texas A&M-College Station Campus found that the assessments reflected a moderate-to-severe level of *depression and anxiety* during the pandemic and the participants reported that their *stress and anxiety* levels had increased during the COVID-19 pandemic, through the *Patient Health Questionnaire-9 (*PHQ-9), the *General Anxiety Disorder* (GAD-7) questionnaire (Wang et al., 2020). Over 38% of the students had a mild to severe level of *anxiety*, and 48% had a moderate to severe level of *depression*. Over 18% percent of students had suicidal thoughts. In conclusion, college students experienced a high percentage of psychological disorders and showed an increasing trend during the pandemic.

Copeland et al. (2021) recruited first-year university students to fill out the COVID-19 related survey after the pandemic (it contained questions to measure students' confidence in confronting the pandemic and government's responses, the hopefulness for the future and the pandemic, and how disruptive effect of the pandemic on their daily life) and complete the positive mood and wellness behaviors questionnaire before and after the onset of COVID-19 (Copeland et al., 2021). They found that the stress level was unaffected by the pandemic but the mood and the wellness behaviors were decreased; one potential reason the researchers provided was that staying at home instead of adapting to the transition from home to college reduced the stress level. Halliburton et al. (2021) used an online survey with university students shortly after the format switched to remote learning and they discovered that the students reported moderate-to-severe levels of anxiety and depressive symptoms and the stressors included lack of routine and social contact as well as work/financial problems

(Halliburton et al. 2021). Gopalan et al. (2022) investigated how sense of belonging for the college students varied overall before and after the COVID-19 and also looked at the differences in different ethnic groups (Gopalan et al., 2021). They observed that there were no significant changes in the sense of belonging, before and after the pandemic, but the rate was lower in the underrepresented racial groups and first-generation students. Furthermore, they found that the higher the sense of belonging, the lower the adverse mental health outcomes among students, for example lower levels of stress and anxiety.

1.2.2. Racial disparities in mental health

As the previous literature demonstrated, students experienced mental health problems in daily life and showed an increased trend during the pandemic. At least one study (i.e., Gopalan et al., 2021) discovered that there were racial or ethnic disparities in mental health conditions and help-seeking behaviors especially for the college or university students.

Thomeer et al. (2022) provided some findings on racial or ethnic differences in mental health conditions by analyzing the publicly available dataset from National Health Interview Survey (National Center for Health Statistics, 2023) and Household Pulse Survey (U.S. Census Bureau, 2024). Overall, the mental health levels were worse for Black, Hispanic, and Asian adults during the pandemic than before (Thomeer et al., 2022). The study mentioned the effect of specific key events as racial trauma for the racial minority groups: for example, Black adults had a higher level of depression or anxiety during the events of the murder of George Floyd, and Asian adults experienced a higher level of depression or anxiety around the murder of six Asian women in Atlanta compared to before the event.

Another study measured the ethnic or racial disparities in mental health conditions as well but focused on the college students and found no racial difference in mental health. Trammell et al. (2021) pointed out that there was no difference in emotional impact of COVID-19 among the different racial/ethnic groups and suggested that this may result from the ethnic minority groups being more resilient to bear the social and economic burden. Interestingly, although the study did not find racial/ethnic differences in health outcomes, Asian and Latinx students reported that they had more negative COVID-19 related thoughts and threats than White students. Ethnic minorities experienced social and economic burden during the pandemic but not really an increased depression during Covid-19 (Trammell et al., 2021).

Lipson et al. (2022) concentrated on the mental health help-seeking behaviors between different racial groups by analyzing the data between 2013 and 2021. Healthy Minds Study data and examining the prevalence rate in the students. There was about 135% of increase for the depression symptoms and about 110% of increase for the anxiety symptoms among the college and university students (Lipson et al., 2022) from 2013 to 2021. There was overall an increasing trend of worsening mental health problems across all racial/ethnic groups: specifically, the prevalence increased most significantly among White students for non-suicidal self-injury and symptoms of eating disorders; for the racial/ethinic minority students, increases were seen in levels of depression and anxiety.

1.2.3. Mental health condition for international students in the US

The previous literature had shown that there were racial disparities in mental health conditions. This section describes studies that investigated mental health conditions among *international* students studying in colleges or universities in the United States. The US welcomes international students from almost 190 countries, and international students are increasingly studying in US universities and colleges (Lin, 2016; Institute of International Education, 2020) As an example the author's university has 7,779 (18.7%) international students and 3,747 were from China, 1,488 were from India, and so on.

Xiong (2018) found that the mental health parameters/assessments were about the same for Asian international students as American students and international students of other ethnicities through analyzing the secondary dataset from American College Health Association-National College Health

Assessment (ACHA-NCHA, n.d.). However, Asian international students reported a higher level of thoughts related to self-injury, and attempts of self-injury, than American and other international students (Xiong, 2018). Xiong (2018) identified that help-seeking behavior was lower for the Asian international students and a potential reason for this reluctance might be the self-perceived significance of mental health problems. If the students perceived the mental health issues as less important, they would be less likely to seek help and vice versa.

Mbous et al. (2022) explored the challenges during COVID-19, specifically for the international students. In their study, the authors pointed out some factors that contributed to negative well-being for international students. The overt discrimination shown towards international students through media and politicians had a negative impact on the experiences and well-being of international students, especially for the international Chinese students (Mbous et al., 2022). Also, international students had more difficulty finding jobs, due to visa and other regulations, which increased stress, and negatively influenced their mental health conditions.

1.2.4. Mental health of Asian students in their own countries

As shown above, international students, particularly Asian international students experienced more negativity, more stress, and were less likely to seek help. If these could be related to being away from home, and not being able to communicate effectively, as well as not having social support then how about the mental health of students in their own countries?

Li et al. (2021) conducted a study with college students from 22 universities in Guangdong Province, China, focusing on the mental health conditions during the COVID-19 pandemic. They found that the prevalence of anxiety and depressive symptoms among the college students increased from the initial state to final state of the COVID-19 and the risk of suicide also showed an increasing trend during the pandemic (Li et al., 2021). Also, self-reported rates of depression and anxiety had been found to significantly increase during the pandemic, which was consistent with the previous research results.

Zhao et al. (2020) investigated the depressive states among university students in South Korea, China, and Japan during COVID-19. The prevalence of depressive symptoms increased, and in particular, the prevalence rates were higher in females (about 14%) students than in males (about 12%) (Zhao et al., 2020). The proportion of female students in South Korea falling into the category of "depressive states" was larger than that of males and it may be due to the fact of "K-Wave" (the K-Pop culture which idealizes slim body image, and unrealistic beauty standards). Moreover, the study found that Japanese university students had higher scores of depressive states than those of China and South Korea and this might be because of losing the opportunity to host the 2020 Olympics in Tokyo.

Thus, mental health issues among college students have been on the rise since the COVID-19 pandemic; international students, particularly Asian international students, have also been affected. In addition to communication problems, being away from home and adapting to a new culture, Asian international students have sometimes had to face negative repercussions during and after the pandemic. As the previous studies had found out, Asian international students had higher levels of anxiety and depression than other ethnic groups and the negative discrimination on social media platforms towards the Asian international students also affected their mental state negatively. The previous studies show that the Asian students in their own countries also reported increased levels of anxiety and depression, let alone the students going abroad.

2. Present study

In the current study, we were interested in the following research question: How do mental health conditions differ among *Asian international* students, and students from other ethnicities in U.S. colleges or universities? In particular, we would like to explore if the mental health conditions vary by age, gender, proficiency in English, and connectedness to friends and family. The studies we reviewed so far have not delved into some of the reasons that we think might have lead to increased

anxiety and depression, increased stress and in general less positive mental health among Asian international students. Our study aims to fill this gap in the literature.

Our main hypothesis was that mental health conditions may be significantly worse among Asian international students than students of other ethnicities. Asian international students have language barriers, coming into an educational institution in a new country, where English is the primary medium of instruction and communication. The language barrier may result in understanding the learning material, completing the coursework, and making friends. Such academic difficulties and social barriers may lead them to experience more stress and loneliness. Furthermore, these students move to a place that is far from their hometown. So, missing their family members and hometown could also be a factor that impacted their mental health conditions more than students of other ethnicities.

Our second hypothesis was that mental health is related to both quality of life, and overall well-being. In other words, a good quality of life is positively related to overall well-being, which in turn indicates fewer mental health issues. In this study, we combined two questionnaires in our survey: the PERMA-Profiler (P – positive and negative emotions, E – engagement, R – relationships, M – meaning, A – accomplishment, Butler & Kern, 2016) and the Mental Health Quality of Life Questionnaire (MHQoL,Van, 2021). We chose these two questionnaires because the MHQoL measures the quality of life in relation to people's mental health and the PERMA-Profiler measures the overall well-being. Higher scores on both scales are related to fewer mental health issues.

3. Method

In order to test our hypotheses, we utilized convenience sampling by sending our Google Forms survey (https://docs.google.com/forms/d/18MqPdjetSGKs9bqzPOhnO4UJqwITzSbg0JswXjp6JGQ/edit#responses) to college students through word of mouth, and via instant messaging on social media. Our survey consisted of three parts: 23 items from the PERMA questionnaire, 8 items from MHQoL questionnaire, and 10 demographic questions of interest. In the survey, participants first filled out the PERMA questionnaire, and then the MHQoL questionnaire, and lastly the demographic information. The specific questions in the survey are provided in Appendix 1.

4. Results and Analysis

4.1. Participant Demographics:

We had a total of 37 participants that responded to our survey, of which 32 participants were at college level or had recently completed college. Of the remaining five participants, one was a high school student, and three were in Master's degree or higher. In the analyses below we examined the data from the 32 college level participants.

Of the 32 participants, 17 (53%) indicated they were Asian, eight (25%) were Asian American, four (13%) were Hispanic/Latino, and three (9%) were White/Caucasian. A majority (N=27, 85%) of participants indicated they were fluent in English. Of the 32 participants, 14 (44%) were international students, 17 (53%) were not international students, and 1 (3%) had no response. Most of the participants (N=27, 85%) rated 3 or higher in connectivity with their family and culture on a 5-point scale, where 1 was not connected and 5 was connected well. A majority of participants (N=26, 81%) rated 3 or higher in connectivity with their friends on a 5-point scale, where 1 was not connected and 5 was connected well.

4.2. Participants' ratings on the PERMA and MHQoL scales for the different items:

4.2.1. Ratings on the PERMA questionnaire:

Figures 1-7 provides the ratings on the PERMA questionnaire.

Positive Emotion (P):

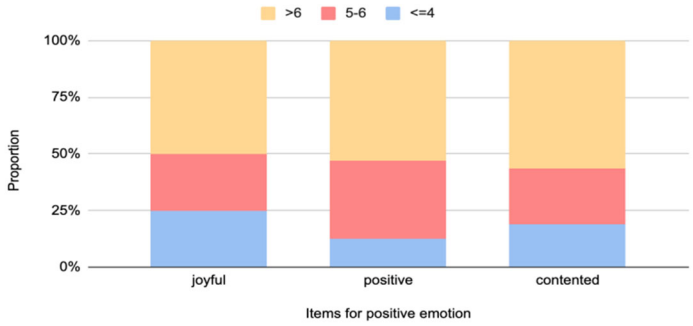

Fig. 1 Percent of response distributions for P (positive emotion) in the PERMA scale

Most of the participants (N=24, 75%) indicated that they *feel joyful* 50% of the time or more (i.e., 5 or more on the scale, which is the combined values of the red and yellow sections in the columns above). A majority of the participants (N=27, 84%) indicated that they *feel positive* 50% of the time (=5 on the scale) or more. A majority of the participants (N=25, 78%) indicated that they *feel conten*ted 50% of the time (=5 on the scale) or more.

Engagement (E):

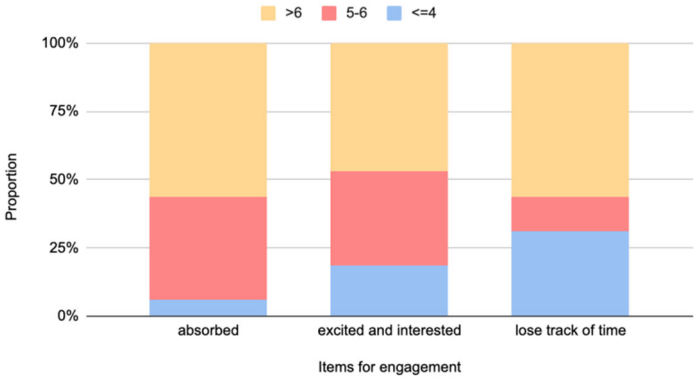

Fig. 2 Percent of response distributions for E (Engagement) in the PERMA scale

Almost all (N=30, 94%) of the respondents indicated that they *became absorbed* 50% of the time (=5 on the scale) or more in what they are doing. A majority of the participants (N=25, nearly 78%) indicated that they *felt excited and interested* in things 50% of the time (=5 on the scale) or more. Most of the participants (N=22, 69%) indicated that they *lost track of time while doing something they enjoy* 50% of the time (=5 on the scale) or more.

Relationships (R):

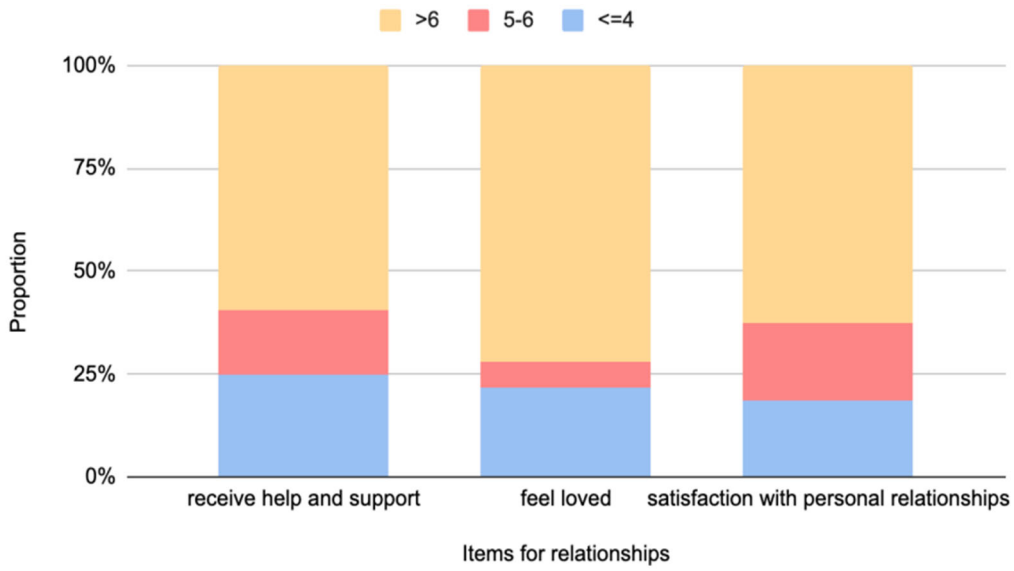

Fig. 3 Percent of response distributions for R (Relationships) in the PERMA scale

Most of the participants (N=23, 72%) indicated that they *received help and support* from others when they need it 50% of the time (=5 on the scale) or more. A majority of the participants (N=24, 75%) indicated that they *feel loved* 50% of the time (=5 on the scale) or more. A majority of the participants (N=25, 78%) indicated that they *are satisfied with their personal relationships* 50% of the time (=5 on the scale) or more.

Meaning (M):

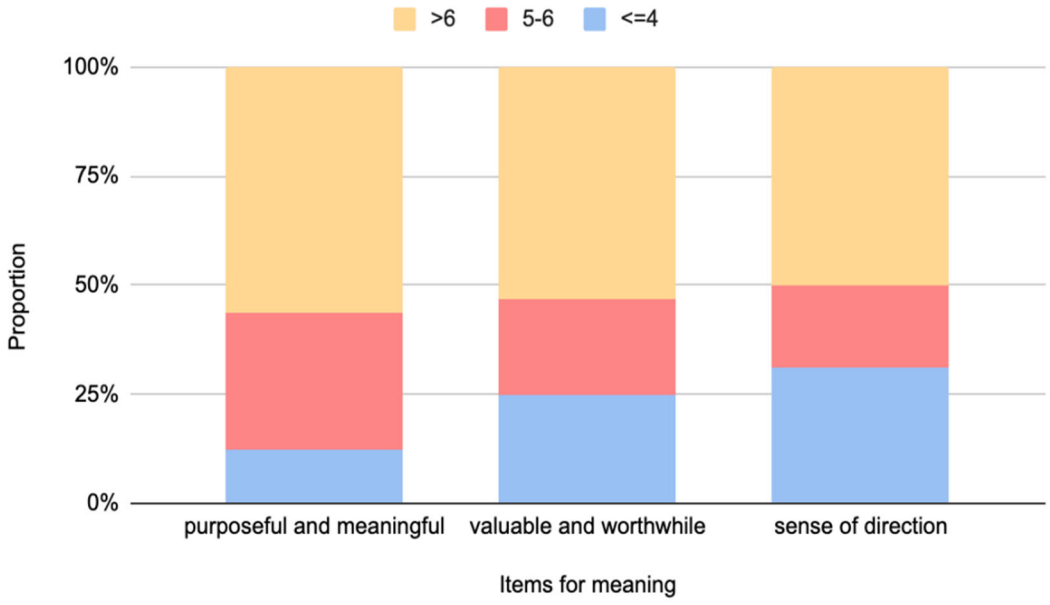

Fig. 4 Percent of response distributions for M (Meaning) in the PERMA scale

A majority of the participants (N=27, 83%) indicated that they lead a *purposeful and meaningful* life 50% of the time (=5 on the scale) or more. Most of the participants (N=23, 72%) indicated that they feel that what they do in their life is *valuable and worthwhile* 50% of the time (=5 on the scale) or more. Most of the participants (N=21, 66%) indicated that they feel they have *a sense of direction* in their life 50% of the time (=5 on the scale) or more.

Accomplishment (A):

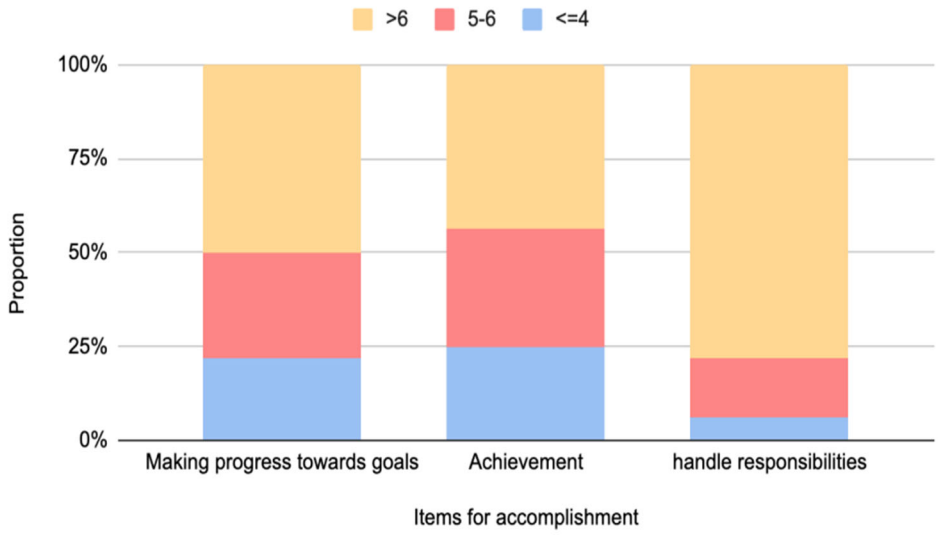

Fig. 5 Percent of response distributions for A (Accomplishment) in the PERMA scale

A majority of the participants (N=25, nearly 78%) indicated that they felt that they are *making progress towards accomplishing their goals* at least 50% of the time. Many of the participants (N=23, 72%) indicated that they *achieve the important goals* they have set for themselves 50% of the time (=5 on the scale) or more. Almost all of the participants (N=29, 92%) indicated that they are able to *handle their responsibilities* 50% of the time (=5 on the scale) or more.

Negative emotion (N):

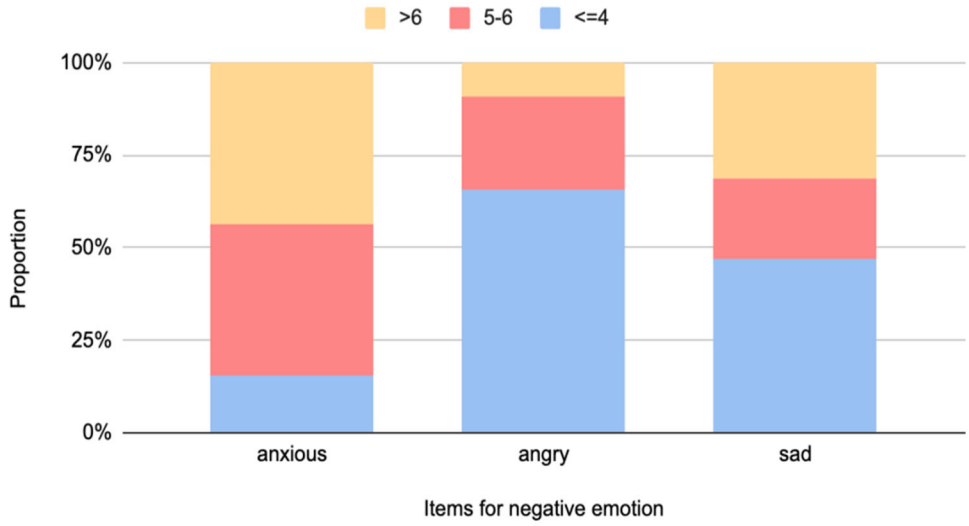

Fig. 6 Percent of response distributions for N (Negative emotion) in the PERMA scale

Interestingly, though the majority of participants indicated they are feeling positive, engaged, had good relationships, found meaning in life, and felt accomplished, a majority of the participants (N=26, 81%) also indicated that they *feel anxious* 50% of the time (=5 on the scale) or more. A few participants (N=10, 31%) indicated that they *feel angry* 50% of the time (=5 on the scale) or more. Half of the participants (N=16, 50%) indicated that they *feel sad* 50% of the time (=5 on the scale) or more.

Health:

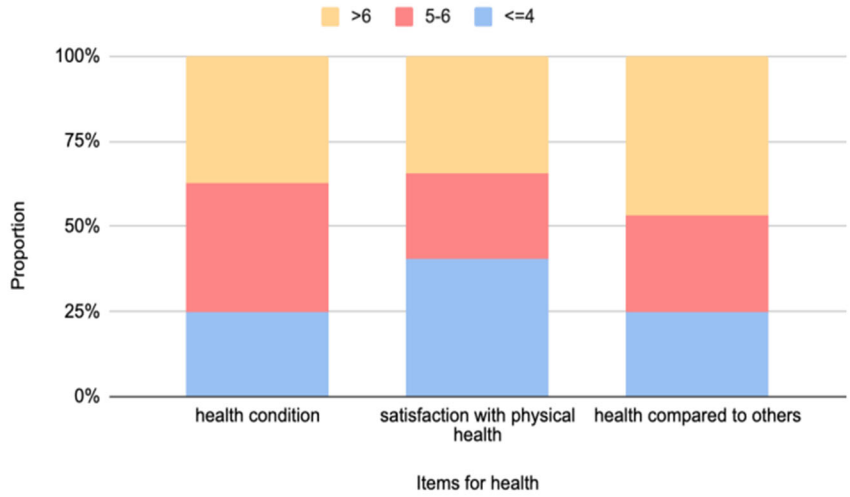

Fig. 7 Percent of response distributions for H (Health) in the PERMA scale

Many of the participants (N=23, 72%) indicated that they have an average or more of *good health* by rating 5 or more on a 10-point scale. Some of the participants (N=18, 56%) indicated that they are *satisfied with their current physical health* 50% of the time (=5 on the scale) or more. A majority of the participants (N=23, 72%) indicated that they have an average or higher of *good health* compared to others of their same age and sex by rating 5 or more on a 10-point scale.

4.2.2. Ratings on the MHQoL questionnaire:

Of the 32 participants, 21 (66%) participants scored between 14 and 21 on the MHQoL, i.e., they indicated that overall, they were feeling positive, satisfied, and content with their lives. This reflects their responses on the PERMA scale as well. Table 1 gives the proportion (and number) of participants who responded to the different items on the MHQoL by indicating a ranking of 3= most satisfied or most contented, 2=satisfied or contented, 1=dissatisfied or discontented, and 0= very dissatisfied/very discontented.

Table 1. Proportion (and N) of participants' responses on the MHQoL scale based on ratings

Question	Ratings 2 and above (satisfied, most satisfied)	Ratings below 2
Self-Image	75% (N=24)	25% (N=8)
Independence	81% (N=26)	19% (N=6)
Mood	72% (N=23)	28% (N=9)
Relationships	84% (N=27)	16% (N=5)
Daily activities	69% (N=22)	31% (N=10)
Physical health	94% (N=30)	6% (N=2)
Future	88% (N=28)	13% (N=4)

4.2.3. Correlation between PERMA and MHQoL scales:

We did a correlation test to see how the scores on the two scales, PERMA, and MHQoL compare across the participants. On the PERMA scale, composite overall well-being scores were calculated based on the mean scores that participants got for each question in PERMA and hap (overall rating for happiness), where each question was on an 11-point scale rating from 0 to 10. On the MHQoL

scale, total scores out of 21 were used. We looked at the composite scores on the PERMA and correlated with the total score on the MHQoL scales.The correlation was highly significant, $r = 0.775$, $p < 0.001$, indicating that participants who indicated overall positive well-being also had good mental health overall.

4.3. Analyses of the PERMA and MHQoL scores by demographic categories:

As a majority of our participants indicated that they were fluent in English, we did not include that factor in our analyses. The following data is based on the other demographic categories.

Table 2 shows the average mental health scores (and SDs) across the two scales, by the ethnic groups.

Table 2. Average scores on the PERMA and MHQoL scales in ethnic groups:

	PERMA score (Avg)	MHQoL score (Avg)
Asian	6.41 (SD= 1.48)	14.80 (SD=2.96)
Asian American	6.24 (SD = 1.60)	12.80 (SD=3.37)
White/Caucasian	5.71 (SD = 1.60)	12.00 (SD=2.65)
Hispanic/Latino	6.17 (SD = 1.99)	12.30 (SD=4.92)

Surprisingly, the Asian students showed an average mental score that was higher than the other three ethnic groups, however these differences were not significant for the PERMA scale (F (3, 28) = 0.145, $p = 0.9$), or the MHQoL (F (3, 28) = 1.26, $p = 0.36$).

Table 3 shows the average mental health scores (and SDs) across the two scales, by the age groups.

Table 3. Average scores on the PERMA and MHQoL scales by age groups:

Age groups	PERMA score (Avg)	MHQoL score (Avg)
15-20 years	6.75 (SD= 0.91)	13.83 (SD=2.14)
21-25 years	6.31 (SD= 1.54)	14.26 (SD=3.19)
26 years or above	5.05 (SD= 2.14)	9.33 (SD=4.51)

Mental health scores decreased by age, i.e., younger age groups had a higher average mental health score on both the PERMA and MHQoL scales than older age groups. However, these differences were not significant for the PERMA scale (F (2, 4.93) = 0.945, $p = 0.450$); and the MHQOL (F (3, 4.83) = 1.48, $p = 0.315$).

Table 4 shows the average mental health scores (and SDs) across the two scales, by the gender groups.

Table 4. Average scores on the PERMA and MHQoL scales by gender groups:

Gender groups	PERMA score (Avg)	MHQoL score (Avg)
female	6.37 (SD=1.51)	14.00 (SD=3.61)
male	5.98 (SD=1.61)	12.88 (SD=2.53)

While we had other options in our demographic questionnaire most participants identified as male or female. Females have an average higher mental health score than the males. However, these

differences were not significant for the PERMA scale (F (1, 11.4) = 0.362, p = 0.559); and the MHQOL (F (1, 17.3) = 0.941, p = 0.345).

Table 5 shows the average mental health scores (and SDs) across the two scales, by the connectivity with family and culture groups.

Table 5. Average scores on the PERMA and MHQoL scales by family connectedness and culture groups:

Family Connectedness and culture	PERMA score (Avg)	MHQoL score (Avg)
1 Not connected	3.09 (SD=0.31)	8.00 (SD=4.24)
2	6.30 (SD=1.99)	12.67 (SD=3.21
3	6.69 (SD=1.17)	14.83 (SD=1.17)
4	5.93 (SD=1.40)	12.69 (SD=3.04)
5 Well connected	7.29 (SD=0.54)	16.38 (SD=2.67)

As it shows, the higher the score of connectivity with family and culture, the higher the average mental health score is in general. These differences were significant for the PERMA scale (F (4, 6.70) = 41.6, p <.001); and were not significant for the MHQoL (F (4, 4.94) = 2.62, p = 0.161). We expect the differences were not significant due to the higher variation in the participants' responses as indicated by the standard deviations.

Table 6 shows the average mental health scores (and SDs) across the two scales, by the connectivity with friends groups.

Table 6. Average scores on the PERMA and MHQoL scales by connectivity with friends groups:

Connectedness to friends	PERMA score (Avg)	MHQoL score (Avg)
1	3.35 (SD=0.50)	9.00 (SD=3.46)
2	6.94 (SD=0.62)	12.50 (SD=3.54)
3	5.76 (SD=1.52)	12.86 (SD=3.80)
4	6.56 (SD=1.18)	14.08 (SD=2.31)
5	7.22 (SD=0.86)	16.00 (SD=2.73)

As it shows, the higher the score of connectivity with friends, the higher the average mental health score is in general. These differences were significant for the PERMA scale (F (4, 6.29) = 19.9, p =.001); and were not significant for the MHQoL (F (4, 5.01) = 2.06, p = 0.223). As with the connectedness with family, we expect the differences on the MHQoL scale were not significant due to the higher variation in the participants' responses as indicated by the standard deviations.

5. Discussion

In the current study, we were interested in exploring differences in mental health among Asian international students, and students from other ethnicities in U.S. colleges or universities. We were also interested in exploring if the mental health conditions vary by age, gender, proficiency in English,

and connectedness to friends and family. In order to do this, we surveyed participants on two mental health scales (the PERMA scale and the MHQoL scale) which measure the quality of life in relation to people's mental health and overall well-being respectively. Our survey also included demographic questions that asked participants about their ethnicity, age, gender, and connectedness to family and friends.

After analyzing the data for the PERMA questionnaire, most of the participants maintained *positive* emotions (P in PERMA), as indicated by their ratings on feeling joyful, positive, and content aspects of the PERMA scale. A majority of our participants indicated they were *engaged* (E in PERMA), through their ratings on becoming absorbed, feeling excited and interested in things, and losing track of time when doing something they enjoy. Most of the participants had good *relationships* (R in PERMA), as indicated by their ratings on receiving help and support from others when they needed it, feeling loved, and being satisfied with their personal relationships. Majority of our participants indicated they had *meaning* in their lives (M in PERMA), through their ratings on leading a purposeful and meaningful life, doing things in life that are valuable and worthwhile, and having a sense of direction. Many of our participants said they felt *accomplishment* (A in PERMA) through their ratings on feeling of making progress towards accomplishing their goals, achieved the important goals they have set for themselves, and being able to handle their responsibilities. Many of our participants said they maintained *good health* (H in PERMA) through their ratings on good health, being satisfied with physical health, and having higher good health compared to others of their same age and sex. However, some of our participants also indicated *negative* emotions (N in PERMA) as indicated by their ratings on feeling anxious, angry, and sad.

After analyzing the data for the MHQoL questionnaire, the majority (66%) of our participants scored between 14 and 21 on the MHQoL, i.e., they indicated that overall, they were feeling positive, satisfied, and content with their lives. In particular, 75% of our participants were most satisfied and satisfied with self image, 81% were most satisfied and satisfied with independence, 72% were most satisfied and satisfied with mood, 84% were most satisfied and satisfied with relationships, 69% were most satisfied and satisfied with daily activities, 94% were most satisfied and satisfied with physical health, 88% were most satisfied and satisfied with future.

We also looked at the correlation between the PERMA and MHQoL questionnaires' scores participants got, where PERMA measures the overall well being and MHQoL measures the mental health. We found that there was a significant correlation between PERMA and MHQoL ($r = 0.775$, $p < 0.001$). This indicates that as the participants demonstrated a positive overall wellbeing, they also indicated a good mental health across the both scales. We analyzed how results varied by each demographic category, including ethnic, age, gender, connectivity to culture and family, and connectivity for the friends groups. For the ethnic groups, the differences for both PERMA and MHQoL scores were not significant, and Asian students surprisingly had a higher average mental health scores than other three ethnic groups. For the age groups, the younger age groups had a higher average mental health scores but the differences were not significant for both scales. For the gender, the differences between each gender was not significant for both scales. For the connectivity to culture and family, and friends, we found a significant difference for the PERMA scales but not for the MHQoL scales. Reasons for connectivity playing a role in positive responses on the PERMA scale could be because the PERMA scale is a nuanced scale, and measures more accurately, and maybe it is more accurately reflective of the participants' mental state.

Our results seemed different from the previous studies. Previous studies found that the overall wellbeing levels were low for the college students (Lee et al., 2021; Wang et al., 2020). However, in our study, the quality of life in relation to mental health and overall wellbeing were good for most participants. The different results might be because after experiencing the pandemic, many college students had worse mental health due to social isolation and other factors. This might have led them to pay attention to their mental health and find ways to improve their wellbeing. Our study being more current, could also indicate a changing trend in schools and colleges where student mental health

has come under increased focus, and remedial measures are being taken (Grunheid, & Hazem, 2023; Shidhaye, 2023).

Furthermore, Gopalan et. al (2022) found that the higher the sense of belonging, the less the adverse mental health such as anxiety and stress would be. We found that participants who indicated higher levels of connectivity with their family and friends also indicated higher scores on the PERMA scale, though not on the MHQoL scale.This could be due to the PERMA scale being more nuanced. Also participants' scores on the MHQoL scale were highly divergent compared to their scores on the PERMA scale, based on how well connected they were. Further our small sample size might have amplified this diversity, and a larger sample size would provide more accurate results.

In our results, we discovered that the positive emotions and negative emotions co-exist. Our participants had a similar level of well being and the negative emotions such as anxiety and feeling sad. This result may be because they might have had a bias to maximize their well-being, or positivity, and minimize their negative emotions. Such results also reflect the complexity of our emotions and finding ways to ensure unbiased, objective reporting in such surveys, and openness to seeking help when needed.

6. Conclusion

In the current study, we were interested in discovering whether there were differences in mental health and wellbeing among Asian international students and other ethnic students because of their age, gender, proficiency in English, connectedness to family and culture, and connectedness to friends. For our results, we found that there was not enough evidence to support that there were differences in mental health and wellbeing between Asian international students and other ethnic students for both PERMA and MHQoL scale, except that we found significant results in connectedness to family and culture, and friends for PERMA scale, not the MHQoL scale. Our results were not significant because we had an unequal number of students in each ethnic group, and our sample was only from one institution. For future directions, we recommend that a larger sample and ensuring an equal number of participants for each ethnic group might provide more accurate results. Further, our study focused on one demographic (i.e., international students from Asia), which could limit the generality of our findings. Finally, future studies can also look into high school students' mental health, as well as the availability of mental health resources that would be indicative of well-being among the participants.

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