

**White Paper Summarizing the Major Findings of:  
'Developing Tailored Messages to Improve Mental Health and Adjustment of  
Asian International Students\*'**

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**Table of Contents**

<b>ABSTRACT</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>4</b>
<b>METHODS</b> .....	<b>8</b>
<b>RESULTS</b> .....	<b>15</b>
<b>CONCLUSION</b> .....	<b>19</b>
<b>REFERENCES</b> .....	<b>21</b>

## ABSTRACT

The purpose of the study was to develop tailored messages for improving mental health and adjustment of Asian international students (AIS) in the United States. The PEN-3 cultural model was used to contextualize the role of culture in mental health needs of AIS. Applying a mixed-method approach, the study developed messages through a multi-step participatory process consisting of three focus groups (n=15), thirteen individual interviews, one expert consultation, and an online survey (n=85). Data analysis led to the development of seven broad themes with seven tailored messages under each theme. Additional findings of this study could be found in a peer-reviewed article by Jin & Acharya, in 2022, in the *Journal of International Students*.

## INTRODUCTION

Asian international students (AIS) account for approximately 70% of all international students in the United States, the majority of whom come from China (44%), India (24%), and South Korea (6%) (IIE, 2019). Previous studies have illustrated that AIS may encounter unique stressors and adjustment challenges such as: sense of confusion and uncertainty in a new cultural environment, language barriers, academic difficulties, social isolation, ethnic discrimination, legal status, and financial problems (Daga et al., 2020; Han et al., 2017; Mikai et al., 2015; Ra & Trusty, 2017). These stressors and challenges may increase the likelihood of psychological distress and mental health problems among AIS (Daga et al., 2020; Han et al., 2017) and impact their mental health help seeking behavior (Wong et al., 2014). For example, Han et al. (2013) reported that 55% of Chinese international students had depressive symptoms. The different cultural and social context of the US, its educational environment creates additional challenges. Acharya et al. (2018) found that 46.94% of their college student sample showed depressive symptoms, and international students were at a significantly higher level of depressive symptoms than domestic students.

Previous research showed that AIS experienced more difficulties in culturally adjusting to the American environment than their European international peers (Ma et al., 2020). These are related to the collectivist cultural norms held by several Asian cultures (Triandis, 1995). Collectivist culture emphasizes interdependence, in which members are embedded into cohesive in-groups (Hofstede, 2011). Many AIS typically value the family and friends as primary sources of social support in stressful situations and this is a strength, but not having the support system close by and operating in an individualistic cultural environment creates significant challenges. Further, the deep connections with friends and family have an unintended effect of putting them

under internal pressure to perform well at school in order to bring honor to the family (Ma et al., 2020). As a result, AIS are less willing to seek outside help for mental health problems than their counterparts, who are from individualist cultures that foster independence (Liu et al., 2020). Also, Asian cultures of emotional self-control and humility may result in depressive symptoms and unwillingness of help-seeking from mental health professionals (Wong et al., 2014). Despite the importance of this problem, there is limited understanding and exploration of culturally sensitive interventions on mental health and adjustment of AIS. To address these limitations, this study aimed to develop culturally tailored messages for improving mental health and adjustment of Asian international students (AIS) in the United States.

### **Messaging as a strategy to address AIS mental health**

Messages are persuasive statements that are created to change behavior in a defined context. These messages could offer factual information or address behaviors in a structured stepwise process or by offering workable alternatives (Morrison et al., 2005). In this study, it applies to the messages that are designed and tailored through a participatory process in order to address AIS mental health, help seeking and other adjustment behaviors. Given the mental health imperative among AIS, supportive messages have been a strategy to assist students with mental health problems. Agyapong et al. (2015) found that supportive messages decreased depressive symptoms, compared to people who only used standard care. Gustafson et al. (2014) discovered that patients with substance abuse who received supportive messages reported fewer drinking days than the control group. Wei et al. (2011) reviewed the efficacy of using supportive messages to promote health behavior, and found that 10 out of 16 RCT studies reported that the intervention group had significantly more improvement than the control group.

Tailoring, as a message strategy, provides specific content to the audiences based on their beliefs, traits, or needs (Kreuter & Wray, 2003). Tailored messages attract more attention, are handled more attentively, cover less unneeded words, and are often seen encouragingly by the message-receivers, compared with untailored information (Kreuter & Wray, 2003; Lustria et al., 2013; Marcus et al., 2005; Smeets et al., 2006; Williams-Piehota et al., 2003). When individuals observe information to be relevant to themselves, they are likely to be motivated and persuaded by the messages (Petty & Cacioppo, 1979). Tailored supportive messages have been proven to be effective to improve behavioral outcomes, such as adherence to cancer prevention, mammography screening intentions, and smoking cessation (Kreuter et al., 2000; Noar et al., 2011; Jin & Acharya, 2016; Strecher et al., 1994).

Further, cultural tailoring assumes importance as it may mirror the nuances of language and cultural practices, so that health messages are tailored to the community's spoken language, shared health beliefs, norms, and expectations, specific barriers, social practices, and other characteristics (Bramley et al., 2005; Dobson et al., 2017; Nimmon et al., 2012). Cultural tailoring is a focused strategy to improve the outcomes of minority populations by using their cultural practices, philosophies, and preferences as means to facilitate the behavior change (Fisher et al., 2007). Fisher et al. (2007) suggested that increased use of culturally tailored interventions would be likely to eliminate disparities, providing more value and cost-effectivity than untailored interventions. Therefore, this study focused on designing culturally tailored messages for AIS studying in the United States (Griner & Smith, 2006).

### **Difficulties and challenges in adjustment for AIS**

AIS have encountered various challenges such as reluctance to seek help, low awareness of mental health and resources, stigma, and difficulties in cultural adjustment (Daga et al., 2020;

Johnson et al., 2018; Ma et al., 2020; Ruzek et al., 2011). Along with low intention to seek help, they are less likely to utilize professional mental health services, exhibit a high rate of premature dropout, and are underserved with psychological counseling (Chen et al., 2020; Liu et al., 2020). This underutilization of mental health services is caused by stigma toward mental illness, mistrust, lack of culturally-appropriate service for Asians, limited English proficiency, and lack of culturally tailored messaging, etc. (Daga et al., 2020; Liu et al., 2020).

Another challenge AIS have faced is that they have limited access to their informal support systems in home countries because of geographic distance, time differences, and financial barriers (Ra & Trusty, 2017). Besides, losing face due to social stigma affects their help-seeking behavior regarding mental health (Ma et al., 2020). Ruzek et al. (2011) suggested that AIS with lower adherence to the Western cultural values experienced more mental health problems, had lower help-seeking intention, and underutilized professional mental health services. This study explored these aspects through the PEN-3 model. AIS are often constructed as a monolith and also grouped under the larger umbrella of International Students. It is important to recognize the cultural and ethnic diversity among them and the complex nature of behaviors they display. However, the Asians as a cultural group also share a number of cultural norms, such as collectivism (e.g., pursuit of common interest), saving face, less self-disclosure than American culture, and value of family honor (Daga et al., 2020; Ma et al., 2020). The goal of this study was to take note of this diversity in AIS and focus the scope to the mental health help seeking behaviors of AIS and their adjustment to American culture and college life. Therefore, the study put Asian culture at the center of message design and development, with the goal of improving mental health and adjustment of AIS. To facilitate this, we chose the PEN-3

model of health behavior as the theoretical framework, which centralizes culture in health interventions.

### **The PEN-3 Model**

The PEN-3 model puts culture at the core of intervention development and implementation (Airhihenbuwa, 1990). It is based on the idea that health behavior is rooted in culture, and that consideration of cultural factors can facilitate the development of successful programs. The model places a health problem within a cultural context in order to guide the intervention development among AIS (Airhihenbuwa, 1995; Airhihenbuwa & Webster, 2004). This model has been widely applied to develop culturally adapted interventions for target populations (Airhihenbuwa et al., 2009; Cowdery et al., 2010; Iwelunmor et al., 2014; Yick & Oomen-Early, 2009). In addition, the PEN-3 model centralizes culture as a frame while identifying health problems, organizing cultural components, and developing the solutions to ensure that the intervention is culturally specific (Airhihenbuwa, 1995).

## **METHODS**

The purpose of the study was to develop tailored messages for improving mental health and adjustment of Asian international students (AIS) in the United States. The study used a mixed-method approach to develop the tailored messages through a multi-step participatory process consisting of three focus groups ( $n=15$ ), thirteen individual interviews, one expert consultation, and finally an online survey ( $n=85$ ). A mixed methods approach enables the researchers to collect both qualitative and quantitative data thereby capitalizing on the strengths of both methods. True to the mixed methods, this study purposefully integrated both qualitative and quantitative data in collection, analysis, and interpretation stages of designing the messages.

## **Participants**

The participants included 113 undergraduate Asian international students, recruited through convenience sampling at Purdue University. The eligibility criteria included: (1) ages 18 years and older, (2) full-time undergraduate students; (3) international students identifying themselves as Asian and holding a F1 visa. The criteria were assessed through Yes/No answers. The participants self-identified as Asian and also noted their country of origin. They also self-identified their gender. As noted earlier, all participants were grouped together as AIS for the purpose of data analysis and message development. Flyers on campus were distributed for recruitment. The study was approved by the Institutional Review Board of Purdue University.

## **Procedure**

In the first step of data collection, focus groups were conducted to understand the preferred content of messages by AIS and the cultural context. After designing tailored messages based on the participant's input, we requested feedback from an Asian therapist from the Counselling and Psychological Center at the university in terms of appropriateness of the messages. Afterwards, individual interviews were conducted with further Asian participants to refine the initial messages. Then, the degree of helpfulness of the messages was evaluated through an online survey. Lastly, we picked 49 tailored messages for use in a subsequent intervention study.

### ***Step 1: Determining Topics of Messages through Focus Groups***

Three focus groups were conducted with AIS ( $n = 15$ ) to help create the topics, content, context and length of tailored messages. The participants were asked to complete a demographic survey, and then attended a focus group with the researchers. The questions in the focus group included "What topics and contents of messages would you like to receive via email for

improving your mental health and adjustment?”; “How long should the messages be, and how often would you like to receive them?”; and “What would motivate you to read these messages”? Each participant received \$10 for incentive. The focus groups yielded 50 pages of data which were thematically analyzed using constant comparative methods (borrowed from grounded theory) within the PEN-3 framework resulting in seven broad themes. The PEN-3 framework provided the larger categories under which the data was coded (the process of data analysis is described below).

### ***Step 2: Designing Content of Tailored Messages***

Within each theme, the researchers designed ten tailored messages (total 70) guided by the PEN-3 model and literature (See Table 1; Sue et al., 2012; Updegraff et al., 2007). Each message contained 100- to 200-word text or an image.

### ***Step 3: Receiving Inputs from an Asian Psychotherapist***

An experienced Asian psychotherapist from the university counselling and psychological services center examined the 70 messages under the 7 broad themes and gave inputs. The psychotherapist was invited for the purpose of ensuring that the designed messages were appropriate and sensitive to Asian cultures, and did no harm to students' emotional well-being. She had extensive experience working with Asian international students, and was capable of providing feedback on how to make the messages more appropriate for AIS. For example, the psychotherapist suggested adding content about “perfection” into the messages, which were found to commonly cause stress among AIS; removing a few quotes (e.g., “Pain is real. But so is hope” and “My dark days made me strong”) that were viewed as unhelpful or discouraging. The researchers further modified the messages based on the psychotherapist's suggestions.

### ***Step 4: Getting Feedback from Individual Interviews to Refine Messages***

A sample of 13 AIS reviewed the modified 70 messages and were interviewed for their feedback. The questions for the participants included “What do you think about these messages you just read?”; and “How would you suggest to improve these messages to make it appropriate and helpful for Asian international students’ mental health and adjustment?” The researchers further refined and tailored these 70 messages from the interview responses. For example, they added information of on-campus resources suggested by the participants (e.g., student organizations, discrimination resources, and wellness resources); included more examples for clarity (e.g., “For example, International Friendship Program connects...”); and changed the wording (e.g., from “simply realize what is happening to you” to “develop understanding of the changes you are experiencing”; from “depression” to “concerns and troubles”). Each participant received \$10 as incentive.

#### ***Step 5: Testing Helpfulness of Messages in Online Survey***

The researchers tested the 70 refined messages through an online survey amongst AIS (N = 85) on a research participation system, which could be accessed by all undergraduate students. Each AIS respondent was randomly exposed to four themes (40 messages in total, in a random order), and was asked to evaluate the helpfulness of messages in each topic (1 to 5 Likert scale with 1 indicating extremely unhelpful to 5 indicating extremely helpful; question was “how helpful is this message to improve your mental health and adjustment?”). The participants received 0.5 course credit on survey completion.

#### ***Step 6: Finalizing Tailored Messages***

The researchers analyzed the evaluation of helpfulness of messages, ranked them according to their mean score of helpfulness and picked the most helpful messages. A total of 49 messages under the 7 themes were finalized.

## Data Analysis

The researchers used a constant comparative method (CCM) borrowed from grounded theory in analyzing the data from the focus groups and developing the messages and themes guided by the PEN-3 framework (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Descriptive categories were identified as soon as the focus group data collection had begun, through a process of constant comparison and comparing codes applicable to each category under development (Glaser, 1965, 1992). These categories influenced the development of the following focus groups, so that the emerging concepts might be explored more thoroughly, answering questions that had been raised from the analysis of previous data (Boeije, 2002; Guba & Lincoln, 1994).

The recorded focus groups were transcribed verbatim and analyzed line by line, using open coding to code as many categories as possible from the data (Strauss & Corbin, 1998). Starting with open coding (e.g., “Stigma attached to mental illness”; “Need for mental health information”), the analysis attempted to identify discrete concepts that could be sorted first (Glaser, 1978). The data were examined sentence by sentence to develop the concepts (Denzin & Lincoln, 2011). Next, the discrete concepts that related to the same categories were grouped together. Subsequently, axial coding was used to formulate relationships within and among the categories. Lastly, selective coding was used to integrate these categories and come up with the central themes (Strauss & Corbin, 1998). The PEN-3 model guided this process of data analysis. Specifically, the study used the PEN-3 model to shape the cultural elements in messages for AIS. During selective coding, the researchers put the codes into the components of the three PEN-3 domains. Afterwards, they created a 3 by 3 matrix to produce nine cells by crossing the components of the domain of cultural empowerment with the domain of relationships and

expectations, based on cultural identity. Then, they developed the central themes and placed them into the appropriate cells within the matrix (see Table 1). Rigor was maintained through constant discussions and reflections amongst the researchers and coming to an agreement on each point of difference in coding the data. Further, a sample of the analysis was shown to some participants for their feedback and thus ensuring rigor and quality. The consultation with the Asian psychotherapist also strengthened the process.

**Table 1**  
*Application of PEN model*

<b>Relationships and Expectations</b>		
<b>Perceptions</b>	<b>Enablers</b>	<b>Nurturers</b>
<b>(Attitudes, views, or knowledge about mental health or seeking help)</b>	<b>(Factors that are facilitators or barriers to mental health and help-seeking)</b>	<b>(Important social network who provides support)</b>
<b>Stigma attached to mental illness</b>	Social support system	Family
<b>Need for mental health information</b>	Language barriers	Friends
<b>Belief that people should rely on self to manage mental health</b>	Available resources	Cultural organizations
<b>Cultural differences</b>	Cultural differences	
<b>Interdependence in Asian family</b>		
<b>Cultural Empowerment</b>		
<b>Positive</b>	<b>Existential</b>	<b>Negative</b>
<b>Available and accessible resources</b>	Knowledge about cultural differences	Stigma
<b>Social network support</b>	Self-control strategies	Difficulties in adjustment and building social network in the US
<b>Family support</b>	Campus safety and laws	
<b>Friends support</b>	Family expectations	

<b>Cultural Identity</b>		
<b>Person</b>	Extended Family	Neighborhood
<b>Asian international students</b>	Family support	Faculty
	Friend support	Cultural organizations

*(continued)*

<b>Domains</b>	<b>Cultural Empowerment</b>			
	Positive	Existential	Negative	
<b>Relationships and Expectations</b>	Perceptions	Theme 1: Information to increase awareness of mental health and reduce stigma in Asian students (need for mental health information)	Theme 5: Adjusting to American culture and college life (transition into American college, understand cultural differences, deal with sense of uncertainty, get involved on campus)	Theme 1: Information to increase awareness of mental health and reduce stigma in Asian students (stigma attached to mental illness)
		Theme 2: Motivational quote	Theme 6: Self-control strategies to reduce stress and manage anxiety (physical activities; calmness; keep a stable mind; physical health; entertainment; time-management skills)	
	Enablers	Theme 3: Available and accessible resources for Asian students to improve mental health (mental health services, language skills, communication, academic help, cultural organizations, career consultation)	Theme 7: Campus safety for Asian students	-
	Nurturers	Theme 4: Building relationships with American peers and faculty (social network support is important) Theme 4: Communication strategies in Asian family for seeking help (family is a primary source of support; interdependence)	Theme 4: Communication strategies in Asian family for seeking help (expectations of family)	Theme 4: Building relationships with American peers and faculty (hard to make friends with Americans; do not want to bother others)

## RESULTS

### **Emerging Themes on Topics of Messages**

The following section describes the 7 themes that emerged from the analysis of focus groups guided by the PEN-3 framework, which formed the topics of designed messages.

#### ***Increasing Mental Health Awareness and Reducing Stigma***

The participants indicated that many Asian international students were not familiar with mental health issues, or had low awareness of mental illness symptoms. Sometimes the students did not realize that they were at risk of mental illness. For example, Participant (P) 15 described “you should provide some information about the symptoms of mental health problems...” P7 stated: “I would like some statistics about what is going on like how many students have depression problem, so that I will feel that I am not the only person who feels depressed”. P3 indicated: “the first section can be how to increase awareness of symptoms of depression or risk factors, anxiety - they are increasing awareness about mental health”.

#### ***Motivational Quotes***

The participants pointed out that they would like to read motivational and positive quotes of mental health. The messages in this theme included short motivational statements/quotes and Asian proverbs. For example, P5 mentioned: “I will read if the messages contain motivational statements. I like reading poems – some statements that are short and meaningful; something that I can digest. I like inspiring statements that urge me to overcome the difficulties”. Similarly, P19 described:

These are motivational quotes and also relatable for students because at times they will face a lot of difficulty in their personal life or academics. I feel like these are inspirational and reading them reminds me that I can overcome any kind of hardship.

### ***Available and Accessible Resources for AIS to Improve Mental Health and Adjustment***

The participants emphasized that they wanted information about accessible and available resources such as mental health services, academic assistance, physical activity groups, Asian cultural center, student organizations, and international student resources. For example, P14: “I think the messages should contain information about what help we can get from which resources, and when they can help me with solving the problems in these areas...” P17: “I hope that international students can take advantage of the programs and resources on campus. I think it would be great if you could list all the resources”.

### ***Seeking Help from Social Network and Developing Interpersonal Skills***

The participants described that when they encountered emotional or psychological problems, sometimes they were not willing to seek help or did not know how to seek help from family and friends, due to stereotypes or tendency to solve problems on their own. This theme closely resonated with the first theme of “stigma” as it prevented participants from seeking help regarding their mental health issues. P1 stated:

I think maybe stereotypes also play a role [in my help-seeking behavior]. Everyone expects Asians to be smart, and that does not apply to me, because I am bad at math. Sometimes I hesitate getting help, because I feel like other people assume that I am intelligent.

Additionally, the participants were not sure how to build a good relationship with American peers, and how to interact with faculty. The participants offered several suggestions, such as getting involved in a program, making friends with both American and international students, engaging in online interaction, and being active. P25 indicated that “it is hard to cross that barrier if you build it so fast and so strong. So, I would suggest that Asian students make efforts to

interact with peers from other cultures from the beginning”. P14: “You can make friends with the dorm RA or your classmates. Start with a familiar person. You do not have to force yourself to make friends with a stranger”.

Difficulty in interacting with instructors/faculty was an additional issue that AIS needed guidance. Although the participants desired to have a good relationship with the instructors/faculty, they did not know the appropriate approach to interact, saying “I would like to receive messages about establishing a positive relationship with faculty”; “I am still not sure how to build a good relationship with the American faculty. I would expect to interact with the faculty like friends and to have a stable and long-standing relationship with the faculty.”

### *Adjusting To American Culture and College Life*

The participants responded that when they came to the US, they were struggling with a sense of confusion and unfamiliarity, and did not know how to better adjust to American college and culture. The participants pointed out that attending programs on the campus was a great way to know about the university culture, get along with diverse students, enjoy various activities, and become comfortable with the unfamiliar environment. For example, P19 suggested that “there is an organization called “UR Global,” which is for international students. I attended their activities in my first semester, and then as a volunteer and peer educator. There is also an organization “CRU” in the church. They have an international brunch; whose staff and volunteers are Americans. I learned a lot about culture and getting involved in local activities from them”. P22 mentioned:

You can also talk about the organizations that celebrate similar things. With Chinese New Year coming up, there is the Chinese association and the Malaysian association to

celebrate with food and snacks. There are people out there that celebrate the same things as you do and understand.

**American Classroom Norms.** The participants perceived that there were great differences between the Asian classroom and the American classroom, which made the process of engaging more difficult for them. For example, P6 narrated:

It is very different between the US and China. In China, the teacher often calls your name in the class; but in the US, the students always have their hand up, asking or answering questions. They do not care if they are wrong or right. But in China it is different, because before you put your hand up, you have to think about if your answer is right or not. Sometimes nobody answers, because the students are afraid that they are wrong.

**Cultural Differences.** Large differences between Asian and American culture were another issue that hinder the progress of cultural adjustment of AIS. For example, P1 stated “American culture is so different from ours. I am not used to American culture, like they have a lot of parties, they play balls on the roadside, and say hi to you even if you are a stranger”. The participants believed that there were many aspects in American culture that are different from Asian culture, while the prior is more open and active and the latter is more introverted.

### ***Coping Strategies to Improve Mental Health and Adjustment***

The participants required specific strategies that they can use to improve mental health and adjustment, such as positive thinking, problem-solving skills, time-management tips, healthy eating, coping with stress, and physical exercise. P18 stated:

There was a lecture about mental health, telling you how to transform negative thoughts.

Shift your thoughts. I think it is a good skill to have. You can also include some strategies

about problem-solving skills. For example, first figure out what causes your distress and look for ways to solve it.

### ***Safety Issues for AIS***

The participants implied that as Asian international students, they were not familiar with the safety issues in the US, which may cause pressure. For example, one participant emphasized the need of increasing safety awareness and knowledge:

Safety is another critical issue. Lafayette is a safe place, but there are some aspects you need to be aware of, such as sexual harassment. It is not a topic that is discussed at the incoming student orientation. So, you might offend others unintentionally, or get harassed by others; we need to know how to deal with safety issues.

Therefore, this theme introduces what the students should do to keep safe, and if they have safety problems, where they can go for help. This theme also contains updated information about campus events for Asian students.

## **CONCLUSION**

In summary, the study developed tailored messages for improving AIS's mental health and adjustment through the PEN-3 cultural framework. The researchers' tailored the messages to AIS' difficulties and concerns, including challenges with adjusting to American culture, unwillingness to seek help, social interaction difficulties, and inadequate awareness of mental health and available resources. These messages reflected Asian cultural norms related to mental health, such as collectivism, interdependence, the stigma attached to mental illness and help-seeking, the value of self-management, etc. The study underlined the importance of cultural tailoring as a strategy for intervention in higher education, which may facilitate building an

inclusive climate on campus (Hawkins et al., 2008; Rimer & Kreuter, 2006). Future studies could evaluate the effects of tailored messages compared with untailored messages. In addition, future research may test the effectiveness of tailored messages delivered in different formats (i.e., text, image, and video).

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