

Inventory of College Challenges for Ethnic Minority Students: Psychometric Properties of a New Instrument in Chinese Americans

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The Inventory of College Challenges for Ethnic Minority Students (ICCEMS) is a newly developed instrument that assesses challenges faced by ethnic minority college students across a range of cultural, academic, social, and practical domains. The present study tested the ICCEMS among Chinese American students in an attempt to identify its factor structure and assess its psychometric properties. A total of 13 factor domains emerged. The Cronbach's alpha and 1-month test-retest reliability of the subscales and the overall scale supported their reliability. Both criterion and construct validities were also demonstrated. Chinese American college students faced the greatest challenges in terms of unclear career direction and academic demands.

• *Inventory of College Challenges for Ethnic Minority Students* • *college challenges*
• *college stressors* • *ethnic minority college students* • *Chinese American college students*

The 2000 U.S. census documented the increasing diversification of the American population. The percentage of the non-White population grew from 24% in 1990 to 31% in 2000. Specifically, the overall American population was made up of 13% Latinos, 12% Blacks, 4% Asian/Pacific Islanders, and 1% American Indians (Ness & Kim,

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2001). Concomitant with the diversification of the general population, American universities are educating a more diverse student population than ever before. Whereas a decade ago, 13.4% of African Americans, 8.1% of Latinos, and 22.7% of Asian/Pacific Islanders held a bachelor's degree, today the respective percentages are 17.5%, 9.7%, and 44.0% ("Many More Minority Students," 2002; U.S. Bureau of the Census, 2002). Strikingly, the proportion of Asian/Pacific Islander college graduates has doubled in the last 10 years.

In spite of their significant numbers, Asian American college students represent an understudied group. This may be due to the popular view that they are a "model minority group" with no or very few problems (Hirschman & Wong, 1986). Recent work suggests this not to be the case (Lee & Ying, 2001; Ying et al., 2001). For instance, Asian American college students have been found to be less competent than Whites and comparable to African, Latino, and multiracial American students. Furthermore, it has been shown that Asian American adolescents report significant distress in pursuing academic achievement (Lee & Ying, 2001).

Although a number of instruments have been developed to assess general challenges of college students (e.g., the Student Adaptation to College Questionnaire [Baker & Siryk, 1984] and the Young Adult Family Inventory of Life Events and Changes—College Changes [Grochowsky & McCubbin, 1987]), few psychometrically sound instruments address the special challenges facing minority students (Cabrera & Nora, 1994; Hendricks, Smith, Caplow, & Donaldson, 1996; Tan, 1994). One such inventory, the Minority Student Stress Scale, assesses stressors specific to minority college students such as racism and discrimination (Smedley, Myers, & Harrell, 1993). However, in a study of 161 ethnic minority freshmen at a predominantly White university, Smedley and colleagues (1993) found that minority-specific domains were less predictive of well-being than non-minority-specific, chronic stressors such as academic demands and relationship difficul-

ties. This suggests that a comprehensive measure of ethnic minority college students' stressors should incorporate both minority-specific and general, nonminority-specific challenges. In the present article, we describe such an instrument, the Inventory of College Challenges for Ethnic Minority Students (ICCEMS).

Significance of the ICCEMS

Developing a psychometrically sound instrument to assess the challenges of ethnic minority college students is important for several reasons. First is the increasing numbers of ethnic minority individuals who are attending college. Identification of the challenges they face has a bearing on their graduation rate and implications for interventions that facilitate their adjustment to college life (Elmers & Pike, 1997).

Second, the college years usually represent the first time that ethnic minority individuals are living away from home and come into intimate contact with majority culture teachers, administrators, and peers. They may experience culture clash resulting from significant variations between the values of the majority and the ethnic minority culture. For instance, the White middle-class culture values individuation and independence, whereas Asian, African, Latino, and Native American cultures value collectivism and interdependence as appropriate adult characteristics (Ho, 1993; Sandoval & De La Roza, 1986; Sipes, 1993; Sudarkasa, 1997). Thus, whereas it has been shown that White students who separate from family and pre-college friends are more likely to stay in school (Tinto, 1986), minority students are less likely to drop out if they have enjoyed a more supportive relationship with parents and significant others (Hendricks et al., 1996). Therefore, it is important to better understand the challenges that ethnic minority students face.

Third, we chose to test the ICCEMS with Chinese Americans because of their size and

the literature's disproportionate emphasis on their success as opposed to the problems they encounter. Chinese Americans represent the largest Asian ethnic group in the United States, numbering 2.7 million and constituting 1% of the American population (U.S. Bureau of the Census, 2002). As mentioned, Chinese Americans are typically considered a model minority group, and their academic success has been well documented (Brand, 1987; Hirschman & Wong, 1986). Academic achievement is a culturally sanctioned method of achieving financial security and social status among Chinese Americans (Sue & Okazaki, 1990), and children are pressured early on by their parents to excel educationally. Yet, recent research shows that regardless of whether they embrace academic achievement, a large proportion of Asian American adolescents experience significant distress as they strive to meet parents' and teachers' high expectations (Lee & Ying, 2001). More research is needed to better understand the challenges Chinese American college students face.

Aims and Hypotheses of the Present Study

The goal of the current study was to assess the psychometric properties and use of the ICCEMS with a Chinese American sample. Specifically, we examined (a) the instrument's factor structure to derive underlying challenge domains, (b) the scale's Cronbach alpha internal reliability and test-retest reliability, (c) its criterion and construct validity, and (d) the degrees of various challenges faced by Chinese American college students. No specific hypotheses regarding challenge domains, scale reliability, or levels of challenges were formulated a priori. However, some general hypotheses guided our testing of the instrument's validity.

With regard to criterion validity, we hypothesized that all challenge domains and overall level of challenge would be positively associated with depression and negatively as-

sociated with self-esteem (Elmers & Pike, 1997; Hendricks et al., 1996; Smedley et al., 1993). In addition, we predicted that academic challenges would be negatively associated with grade point average. Furthermore, congruent with acculturation theory (Berry, 1997), construct validity would be demonstrated by a positive association between a strong Chinese cultural orientation (e.g., language use and proficiency and social affiliation) and academic and social challenges. In contrast, a strong American cultural orientation (e.g., English use and proficiency and social affiliation with Americans) would be negatively associated with academic and social challenges. We also predicted that peer attachment would be negatively associated with social difficulties. We hypothesized that an increasing number of years in school would be associated with fewer challenges in general, because freshmen were least familiar with the campus environment and might experience more academic, social, and practical challenges than academically more advanced students. Furthermore, we believed that socioeconomic status (SES) would be associated with the experience of certain challenges, such as financial difficulty. Finally, we predicted that living situation would be associated with certain challenges, such that students who lived with family members would be less likely to feel homesick.

Method

Sample

The sample consisted of 353 Chinese American students at a major public university in the western United States. Of the participants, 174 were men and 179 were women, and 122 were American born and 231 were immigrants. On average, the immigrant participants had resided in the United States for 8.80 years ($SD = 4.99$). The sample's mean age was 20.23 years ($SD = 1.77$), and the overwhelming majority of the participants (99.2%) were single.

The participants had been enrolled at the university for an average of 2.68 years ($SD = 1.18$); 26.9% were majoring in the social sciences and humanities; 25.8% were majoring in engineering and computer science; 17.6% were majoring in the physical sciences; 13.6% were majoring in business, economics, or mathematics; and 16.1% had not yet declared a major. Their mean grade point average (GPA) was 3.17 ($SD = 0.49$) on a 4-point scale. According to Hollingshead's (1957) method of calculating SES from father's education and occupation (possible score range: 11 to 77, with 11 being the highest socioeconomic level), they had a mean SES score of 28.56 ($SD = 15.25$); that is, they were middle class. With regard to living arrangements, 19.3% lived alone (either in single dormitory rooms or off campus), 13.0% lived with family members, and 67.7% lived with others (either in dormitories or off campus).

Measures

The participants completed the ICCEMS and several other measures used to assess its validity. These measures, described subsequently, included the General Ethnicity Questionnaire Chinese and American language use and proficiency and social affiliation subscales (GEQ-C and GEQ-A; Tsai, Ying, & Lee, 2000), the Inventory of Parent and Peer Attachment Peer Subscale (IPPA; Armsden & Greenberg, 1987), the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979), and a demographics questionnaire.

ICCEMS. The first 27 items of the ICCEMS were adopted from the Young Adult Family Inventory of Life Events and Changes, Part II: College Changes (Grochowsky & McCubbin, 1987) scale. Additional items, generated by a review of the literature and the authors' knowledge of the challenges faced by ethnic minority students, assessed racial discrimination and negotiation of cultural differences (see the Appendix).

GEQ-C AND GEQ-A. The GEQ-C and GEQ-A (Tsai et al., 2000) were developed to assess degree of orientation to Chinese culture and American culture. The two versions consisted of 38 identical items coded on a 5-point Likert scale (1 = *strong disagreement*, 5 = *strong agreement*). Two GEQ-C and GEQ-A subscales (with identical items) were used in the current study: Chinese/English language use and proficiency (e.g., "How much do you speak Chinese/English at home?") and Chinese/American social affiliation (e.g., "Now my friends are Chinese/American"). Internal reliability coefficients in our sample were .80 for Chinese language use and proficiency, .79 for English language use and proficiency, .76 for Chinese social affiliation, and .75 for American social affiliation. One-month test-retest reliabilities with a subset of the sample ($n = 60$) were as follows: .99 for Chinese language use and proficiency, .94 for English use and proficiency, .80 for Chinese affiliation, and .78 for American affiliation (Ying, Lee, & Tsai, 2000). In our sample, the mean Chinese language use and proficiency score was 2.76 ($SD = 0.88$), the mean English use and proficiency score was 3.93 ($SD = 0.60$), the mean Chinese affiliation score was 3.55 ($SD = 0.74$), and the mean American affiliation score was 3.01 ($SD = 0.74$; Ying, Lee, & Tsai, 2000).

IPPA. The IPPA (Armsden & Greenberg, 1987) consisted of two subscales, one measuring parent attachment and one measuring peer attachment. Only the peer subscale, consisting of 25 items assessing degree of trust, communication, and alienation in peer relationships, was used in this study. Sample items include "I trust my friends," "I tell my friends about my problems and troubles," and "I wish I had different friends" (reverse coded). Items were rated on a 5-point Likert-type scale (1 = *almost or never true*, 5 = *almost always or always true*). Items 4, 5, 9, 10, 11, 18, 22, and 23 were worded in the negative direction and reverse coded before overall peer attachment scores were calculated. As a result of the

negative scoring of some items, the range of possible scores was -25 to 83 , with higher total scores reflecting better relationships. In our sample, the alpha reliability coefficient was $.84$, and 1-month test-retest reliability was $.93$ ($n = 52$). The mean overall peer attachment rating was 53.29 ($SD = 13.72$).

CES-D. The 20-item CES-D assessed presence of depression symptoms in the past week (Radloff, 1977). Four of the items (4, 8, 12, and 16) were reverse coded. Sample items include "I feel depressed," "I feel lonely," and "I was happy" (reverse coded). The range of possible summed scores was 0 to 60, with a score of 0 indicative of no depression symptoms and a score of 60 indicative of a severe level of depression. The CES-D has been used in previous studies involving Chinese Americans (Ying, 1988). In the present study, the Cronbach alpha coefficient was $.88$, and 1-month test-retest reliability was $.77$ ($n = 55$; Ying, Lee, Tsai, Yeh, & Huang, 2000). The sample's mean CES-D score was 17.47 ($SD = 9.57$).

SELF-ESTEEM. The RSE (Rosenberg, 1979), which was used to assess self-esteem, consisted of five positively worded items (1, 3, 4, 7, and 10) and five negatively worded items (2, 5, 6, 8, and 9). Sample items include "On the whole, I am satisfied with myself" and "At times, I think I am no good at all." Items were scored on a 4-point Likert-type scale, with a possible score range of 10 to 40; higher scores reflected greater self-esteem. In our sample, the mean self-esteem score was 29.39 ($SD = 4.87$). The scale's internal reliability coefficient was $.86$, and 1-month test-retest reliability was $.90$ ($n = 52$).

DEMOGRAPHICS. A demographics questionnaire was used to gather information on age, gender, marital status, migration status (American born or immigrant), years of residence in the United States (among immigrants only), years in school, academic major, GPA, and father's education and occupation. As mentioned earlier, SES

was calculated with Hollingshead's (1957) index.

Procedure

Participants were recruited through (a) the study university's psychology participant pool, (b) announcements made during classes and Asian American student organization meetings, (c) flyers posted throughout the campus, and (d) word of mouth. Participants signed a consent form and completed the paper-and-pencil questionnaires (ICCEMS, GEQ-C, GEQ-A, IPPA peer subscale, CES-D, RSE, and demographics questionnaire) either alone or in a group with other participants.

Results

ICCEMS Domains

To identify the factors underlying the ICCEMS items, we conducted a principal-axis factor analysis with varimax rotation. The Kaiser-Meyer-Olkin measure of sampling adequacy was $.82$. Bartlett test of sphericity results were as follows: $\chi^2(1326, N = 353) = 6,313.30, p = .001$. Thirteen conceptually meaningful factors with eigenvalues greater than one emerged. Together, they explained 46.46% of the variance. These factors were as follows: (a) racism and cross-cultural communication difficulty (consisting of Items 47, 48, 49, and 50), (b) counseling needs (consisting of Items 2, 3, and 4), (c) financial worry (consisting of Items 11, 20, 33, 36, and 39), (d) academic demands (consisting of Items 17, 31, and 32), (e) unclear career direction (consisting of Items 5, 6, 7, and 34), (f) housing problem (consisting of Items 12, 13, and 38), (g) social isolation (consisting of Items 14, 15, 19, and 21), (h) romantic difficulties (consisting of Items 42, 43, and 44), (i) homesickness (consisting of Items 16, 22, and 45), (j) difficulty with academic expression (consisting of Items 29 and 30), (k) unfamiliarity with campus (consisting of Items 28, 51, and

52), (l) inability to study (consisting of Items 8, 9, and 23), and (m) pressure to use substances (consisting of Items 24 and 25). All item loadings were .30 or higher.

The factors and the items loading on them are presented in Table 1. Because the ICCEMS domain subscales were based on varying numbers of items, mean subscale scores were used in further analyses. The range of possible scores was 0 to 4. The overall ICCEMS score was created by summing the 13 mean subscale scores; the possible score range was 0 to 52.

Reliability

The internal reliability of the 13 ICCEMS scales was generally high. Cronbach alpha coefficients were .85 for racism and cross-cultural communication difficulty, .89 for counseling needs, .73 for financial worry, .71 for academic demands, .71 for unclear career direction, .63 for housing problem, .72 for social isolation, .69 for romantic difficulties, .66 for homesickness, .74 for difficulty with academic expression, .55 for unfamiliarity with campus, .64 for inability to study, and .52 for pressure to use substances. The internal reliability of the overall ICCEMS was .89.

Test-retest reliabilities of the ICCEMS subscales at 1 month, assessed with a subsample of 53 participants, were found to be high: .88 for racism and cross-cultural communication difficulty, .62 for counseling needs, .82 for financial worry, .75 for academic demands, .87 for unclear career direction, .84 for housing problem, .83 for social isolation, .89 for romantic difficulties, .81 for homesickness, .79 for difficulty with academic expression, .64 for unfamiliarity with campus, .82 for inability to study, and .90 for pressure to use substances. The test-retest reliability of the ICCEMS overall score was .84.

Validity

The criterion validity of the ICCEMS subscales and overall scale was assessed by their association with depression and self-esteem

levels. As hypothesized, all subscale scores and the summary score were significantly positively associated with depression level. In addition, all but two of the subscales (romantic difficulties and pressure to use substances) exhibited a significant negative association with self-esteem (see Table 2). The strongest associations ($ps < .001$) with depression and self-esteem were found with the overall score ($r = .57$ and $-.42$, respectively), the social isolation score ($r = .46$ and $-.37$, respectively), and the academic demands score ($r = .40$ and $-.36$, respectively). Furthermore, the criterion validity of the academic demands scale was supported by its negative association with GPA ($r = -.21$, $p = .001$).

The construct validity of the ICCEMS subscales and overall scale was assessed by their association with Chinese and English language use and proficiency, Chinese and American social affiliation, peer attachment, and demographic characteristics (including years in school, SES, and living situation). Racism and cross-cultural communication difficulty score was associated with English and Chinese language use and proficiency ($r = -.32$ and $.30$, respectively, $ps < .001$) and affiliation with Americans and Chinese people ($r = -.25$ and $.29$, respectively, $ps < .001$). Lower levels of English use and proficiency and affiliation with Americans and greater levels of Chinese language use and proficiency and affiliation with Chinese people were positively associated with experiencing more racism and cross-cultural communication difficulty. Counseling needs score was positively associated with Chinese language use and proficiency ($r = .14$, $p = .008$) but negatively associated with English use and proficiency ($r = -.14$, $p = .007$). Financial worry score was associated with SES ($r = .18$, $p = .001$; SES was coded such that a higher score reflected lower status).

Academic demands score was negatively associated with years in school ($r = -.11$, $p = .04$), such that more academically advanced students reported fewer challenges. Unclear career direction score was positively associated with years in school ($r = .22$, $p < .001$), such that students closer to graduation re-

TABLE 1 Inventory of College Challenges for Ethnic Minority Students Factor Items and Loadings

| <i>Factor</i> | <i>Loading</i> |
|--|----------------|
| Factor 1: racism and cross-cultural communication difficulty | |
| 50. Trouble communicating with staff of another cultural background | .87 |
| 49. Trouble communicating with faculty of another cultural background | .83 |
| 48. Trouble communicating with student of another cultural background | .72 |
| 47. Felt you were subject to racial discrimination | .44 |
| Factor 2: counseling needs | |
| 3. Difficulty finding a counselor | .83 |
| 4. Difficulty getting the help you needed from a counselor | .83 |
| 2. Difficulty getting needed information from your academic advisor | .74 |
| Factor 3: financial worry | |
| 11. Felt financial pressures regarding how to pay for tuition, books, etc. | .68 |
| 20. Felt your being in college has placed added strain on your family | .53 |
| 36. Worried about basic living needs (e.g., cooking, cleaning, laundry) | .50 |
| 33. Worried about balancing work and school | .49 |
| 39. Worried about family obligations | .47 |
| Factor 4: academic demands | |
| 32. Felt you could not keep up with the academic demands | .70 |
| 31. Felt you did not understand a lecture or class discussion | .62 |
| 17. Felt conflict between studying and making friends and partying | .47 |
| Factor 5: unclear career direction | |
| 6. Felt pressure from your parents to make a career choice | .75 |
| 5. Felt pressure to make a career choice | .63 |
| 7. Felt pressure from your parents to succeed in college | .63 |
| 34. Worried about postgraduation plans | .39 |
| Factor 6: housing problem | |
| 13. Felt the need to have more privacy | .79 |
| 12. Had conflict or hassles with your roommate(s) | .59 |
| 38. Had trouble finding housing you liked | .36 |
| Factor 7: social isolation | |
| 15. Had difficulty making friends | .67 |
| 14. Felt uncertainty regarding how to act in social settings | .65 |
| 19. Felt isolated from the college community | .52 |
| 21. Had difficulty participating in social activities held at college | .44 |
| Factor 8: romantic difficulties | |
| 42. Had disagreements with your romantic partner | .83 |
| 43. Broke up a romantic relationship | .72 |
| 44. Missed your romantic partner who is away | .52 |
| Factor 9: homesickness | |
| 45. Missed the place (town) where you lived before coming to college | .78 |
| 16. Felt lonely because you missed your family | .61 |
| 22. Felt strain from missing contact with your high school friends | .31 |
| Factor 10: difficulty with academic expression | |
| 29. Felt you could not express yourself adequately in class discussions | .67 |
| 30. Felt you could not express yourself adequately in writing papers | .56 |
| Factor 11: unfamiliarity with campus | |
| 52. Had trouble accessing various campus resources | .58 |
| 51. Could not find your way around campus | .55 |
| 28. Worried about enrolling in classes you want/need | .37 |
| Factor 12: inability to study | |
| 23. Been unable to study when wanted to for as long as wanted to | .56 |
| 9. Been unable to use the library to study | .48 |
| 8. Been unable to find a quiet place to study | .39 |
| Factor 13: pressure to use substances | |
| 25. Felt pressure to use nonprescription drugs when you didn't want to | .70 |
| 24. Felt pressure to drink when you didn't want to | .47 |

TABLE 2 Criterion Validity as Demonstrated by Association of Inventory of College Challenges for Ethnic Minority Students Scale Scores With Depression and Self-Esteem Levels

| Scale | Depression | Self-esteem |
|--|------------|-------------|
| Racism and cross-cultural communication difficulty | .26** | -.22** |
| Counseling needs | .36** | -.21** |
| Financial worry | .36** | -.31** |
| Academic demands | .40** | -.36** |
| Unclear career direction | .30** | -.22** |
| Housing problem | .24** | -.20** |
| Social isolation | .46** | -.37** |
| Romantic difficulties | .20** | -.01 |
| Homesickness | .33** | -.16* |
| Difficulty with academic expression | .27** | -.30** |
| Learning about campus | .28** | -.17** |
| Inability to study | .34** | -.24** |
| Pressure to use substances | .14* | -.05 |
| Overall score | .57** | -.41** |

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

ported more challenges in this domain. Housing problem score was negatively associated with years in school ($r = -.18$, $p = .001$), such that beginning students had more difficulty with housing than more advanced students. Social isolation score was negatively associated with peer attachment and English use and proficiency ($r = -.28$, $p < .001$, and $r = -.14$, $p = .007$, respectively). Also, students who lived with family members were more isolated from the campus community than those living away from their family (mean score of 1.66 [$SD = 1.00$] vs. 1.20 [$SD = 0.83$]), $t(351) = 3.35$, $p = .001$. Romantic difficulties score was marginally associated with years in school ($r = .10$, $p = .06$); older students were more likely to date and have the opportunity to experience romance-related difficulties. Homesickness score was associated with years in school ($r = -.16$, $p = .002$), such that beginning students were more homesick than more advanced students. In addition, students living with family members were less homesick than those living alone or with individuals other than family members (mean score of 1.01

[$SD = 0.97$] vs. 1.33 [$SD = 0.90$]), $t(351) = -2.28$, $p = .02$.

Difficulty with academic expression score was positively associated with Chinese language use and proficiency and negatively associated with English use and proficiency ($r = .16$, $p = .004$, and $r = -.17$, $p = .002$, respectively). Unfamiliarity with campus score was negatively associated with years in school ($r = -.19$, $p < .001$), such that beginning students experienced more difficulty than advanced students. Also, students at higher levels of affiliation with Chinese people reported greater unfamiliarity with the campus ($r = .12$, $p = .03$). Inability to study score was associated with greater affiliation with Americans ($r = .15$, $p = .005$). Pressure to use substances score was negatively associated with peer attachment ($r = -.12$, $p = .03$), such that students with positive attachments to their peers experienced less pressure to drink or use drugs. Overall ICCEMS score was negatively associated with English language use and proficiency ($r = -.15$, $p = .005$) and peer attachment ($r = -.16$, $p = .004$) but positively associated with Chinese language use and proficiency ($r = .13$, $p = .02$), Chinese affiliation ($r = .18$, $p = .001$), and SES ($r = .12$, $p = .02$; as described earlier, a higher SES score reflects lower status). These associations demonstrate the construct validity of the ICCEMS scales.

ICCEMS Subscale and Overall Scale Descriptives

Descriptive statistics for the ICCEMS domain scales and the overall scale are presented in Table 3. In addition to the mean and standard deviation for each scale, the percentage of students reporting at least a little difficulty was calculated. The overall mean ICCEMS score was 16.67 ($SD = 6.51$), with 68.2% of the participants reporting at least a little difficulty. The greatest amount of challenge was experienced in the domains of career direction ($M = 2.13$, $SD = 0.99$), with 82.7% of the sample reporting at least a little difficulty, and academic de-

TABLE 3 Inventory of College Challenges for Ethnic Minority Students Subscale and Overall Sum Descriptives

| Scale | <i>M</i> | <i>SD</i> | % reporting at least "a little" challenge |
|---|----------|-----------|--|
| Racism and cross-cultural communication | | | |
| Difficulty | 0.81 | 0.81 | 29.7 |
| Counseling needs | 1.42 | 1.13 | 53.4 |
| Financial worry | 1.27 | 0.91 | 49.9 |
| Academic demands | 2.01 | 0.94 | 79.6 |
| Unclear career direction | 2.13 | 0.99 | 82.7 |
| Housing problem | 1.06 | 0.94 | 39.9 |
| Social isolation | 1.26 | 0.87 | 49.9 |
| Romantic difficulties | 0.86 | 1.01 | 34.9 |
| Homesickness | 1.29 | 0.91 | 49.0 |
| Difficulty with academic expression | 1.81 | 1.17 | 63.5 |
| Unfamiliarity with campus | 1.02 | 0.72 | 38.2 |
| Inability to study | 1.57 | 0.99 | 59.5 |
| Pressure to use substances | 0.15 | 0.42 | 3.7 |
| Overall score | 16.67 | 6.51 | 68.2 |

mands ($M = 2.01$, $SD = 0.94$), with 79.6% of the students having at least a little difficulty. In contrast, the least amount of challenge was reported in the areas of pressure to use substances ($M = 0.15$, $SD = 0.42$), with only 3.7% of the participants reporting at least a little difficulty; racism and cross-cultural communication difficulty ($M = 0.81$, $SD = 0.81$), with 29.7% of the students having at least a little difficulty; and romantic difficulties ($M = 0.86$, $SD = 1.01$), with 49.9% of the students reporting at least a little difficulty. Mean level of challenge scores in all other domains fell between 1 (*a little*) and 2 (*somewhat*), and the percentage of students experiencing at least a little difficulty in these domains ranged from 39.9% (housing) to 63.5% (academic expression).

Discussion

Psychometric Properties of the ICCEMS

Of the 52 ICCEMS items, 42 loaded onto one of the 13 factors identified by the prin-

cipal-axis analysis, representing a range of cultural, social, academic, and practical challenges faced by ethnic minority students. The subscales and the overall scale showed good internal reliability and test-retest reliability. Also, supporting the criterion validity of the subscales and the overall scale, all challenge scales were significantly positively associated with depression, and all but 2 were significantly negatively associated with self-esteem, pointing to the psychological consequences of these stressors (Elmers & Pike, 1997; Hendricks et al., 1996; Smedley et al., 1993). In addition, the criterion validity of the academic demands scale was supported by its significant negative association with GPA. Furthermore, the construct validity of the subscales and overall scale was supported by their negative association with higher SES, more years in college, peer attachment, English use and proficiency, and affiliation with Americans but positive association with Chinese language use and proficiency and affiliation with Chinese people.

Levels of Challenges Across ICCEMS Domains

Interestingly, in spite of the prevalent notion that Chinese Americans are members of a model minority group who excel academically, the two domains in which students reported the highest levels of challenge were academic demands (M score = 2.01, $SD = 0.94$ [somewhat]) and unclear career direction (M score = 2.13, $SD = 0.99$ [more than somewhat]), suggesting that eventual success is not attained without a certain degree of distress. More research is needed to document how Chinese Americans experience the process of education, not merely its outcome.

The areas in which the least amounts of challenge were identified were pressure to use substances (M score = 0.15, $SD = 0.42$ [close to not at all]) and racism and cross-cultural communication difficulty (M score = 0.81, $SD = 0.81$ [less than a little]). Pressure to use substances may indeed be low among Chinese American college students, in that research has generally shown that

Asian Americans use substances less than other ethnic groups (Zane & Huh-Kim, 1998). However, some studies of Asian college students have shown that the majority of these students do consume alcohol. Li and Rosenblood (1994) found that 62.1% of the 178 Chinese Canadian college students they sampled were alcohol drinkers. In addition, Akutsu, Sue, Zane, and Nakamura (1989) found that 80% of the 100 Asian American college students they sampled consumed alcohol, and the majority did so at least once a month. Future research should explore the possibility of underreporting owing to social desirability issues. The low level of racism and cross-cultural communication difficulty may have been due to the large presence of Asian American students at the study site, in that it is one of few American campuses where the presence of Asians exceeds that of White students (39.4% vs. 32.4%; Office of Student Research, 1999). In contrast, Tan (1994) found that 62% of the 222 Asian American undergraduates he sampled at a predominantly White public university had experienced racism. Further studies are needed to assess Chinese American students' experiences of racism and cross-cultural differences at other universities.

By and large, the students experienced a low level of challenges across the ICCEMS domains. However, except for the domain of pressure to use substances, the percentage of students responding with at least a little challenge on the ICCEMS domains ranged from 29.7% to 82.7%. This suggests that there is a subgroup of Chinese American students who are distressed. Coupled with the finding that many of the challenge domains were negatively correlated with greater English use and proficiency and affiliation with Americans and positively associated with Chinese language use and proficiency and affiliation with Chinese people, it is likely that immigrants encounter more problems than American-born Chinese students. Future research should identify subgroups of Chinese American students

who are at greater risk of experiencing challenges.

Directions for Future Research and Conclusion

Some of the instruments we used to assess the validity of the ICCEMS (such as the IPPA, CES-D, and RSE) were standardized on White Americans. Previous research suggests that, as a result of their acculturation, the CES-D works as expected with educated Chinese Americans (Ying, 1988, 1989). This is likely to also be true for the IPPA and the RSE. However, this remains to be demonstrated in future research.

Because the ICCEMS was developed for use with ethnic minority students in general, future research needs to test its psychometric properties in other ethnic populations, particularly African and Latino American students. Unlike Chinese Americans, who are viewed as a model minority group and are pressured to succeed (Lee & Ying, 2001), these other student populations may suffer from teachers' low expectations and are at greater risk of dropping out (de los Santos & Rigual, 1994; Wilson, 1994). In addition, given the diversity within the Asian American population, future research needs to include other Asian ethnic groups that are underrepresented on American campuses, such as Filipinos and Southeast Asian Americans. As noted previously, future research should also assess differences in challenges encountered by immigrant and American-born Chinese students. Moreover, because this study was conducted at a campus with a high concentration of Asian American students, future research needs to assess challenges faced by Chinese American students on campuses where they represent a much smaller proportion of the student population. Finally, comparative studies are needed to identify similarities and differences in challenges faced by students from different ethnic groups.

As the American population continues to diversify, and more ethnic minorities gain access to higher education, American university administrators and teachers need to

become increasingly attuned to the needs of these students. The finding that experiences of problems are correlated with emotional well-being (depression) and self-concept (esteem) points to the salience of these experiences to students' psychological functioning. It is our hope that the ICCEMS may serve to inform universities of the needs of ethnic minority students, which is the first step toward developing appropriate assistance strategies.

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Appendix
Inventory of College Challenges for Ethnic Minority Students

Items were worded as follows: "Did this happen to you DURING THE LAST SIX MONTHS? Would you say it happened not at all (0), a little (1), somewhat (2), often (3), all the time (4)?"

1. Felt pressure to get good grades
2. Had difficulty getting needed information from your academic advisor
3. Had difficulty finding a counselor for your personal needs (e.g., academic, career, emotional, etc.)
4. Had difficulty getting the help you needed from a counselor
5. Felt pressure to make a career choice
6. Felt pressure from your parents to make a career choice
7. Felt pressure from your parents to succeed in college
8. Been unable to find a quiet place to study
9. Been unable to use the library to study
10. Been unable to use the athletic and recreational facilities when you wanted to
11. Felt financial pressures regarding how to pay for tuition, books, etc.
12. Had conflict or hassles with your roommate(s)
13. Felt the need to have more privacy
14. Felt uncertainty regarding how to act in social settings
15. Had difficulty making friends
16. Felt lonely because you missed your family
17. Felt conflict between time to study and time to make friends and party
18. Worried about finding a place to park at school
19. Felt isolated from the college community
20. Felt your being in college has placed added strain on your family
21. Had difficulty participating in social activities held at the college during evening hours or on weekends
22. Felt strain from missing contact with your high school friends
23. Been unable to study when you wanted to for as long as you wanted to
24. Felt pressure to drink when you didn't want to
25. Felt pressure to use nonprescription drugs when you didn't want to
26. Worried about being sexually attractive
27. Felt confused about your priorities, values, beliefs
28. Worried about enrolling in classes you want/need
29. Felt you could not express yourself adequately in class discussions
30. Felt you could not express yourself adequately in writing papers

(Appendix continues)

31. Felt you did not understand a lecture or class discussion
32. Felt you could not keep up with the academic demands
33. Worried about balancing work and school
34. Worried about postgraduation plans
35. Didn't like the food served in dorms
36. Worried about basic living needs (e.g., cooking, cleaning, laundry)
37. Worried about transportation
38. Had trouble finding housing you liked
39. Worried about family obligations
40. Had trouble forming a romantic relationship
41. Felt pressure to have sex when you didn't want to
42. Had disagreements with your romantic partner
43. Broke up a romantic relationship
44. Missed your romantic partner who is away
45. Missed the place (town) where you lived before coming to college
46. Were concerned about your safety
47. Felt you were subject to racial discrimination
48. Felt you had trouble communicating with a student of another cultural background
49. Felt you had trouble communicating with a faculty person of another cultural background
50. Felt you had trouble communicating with a staff person of another cultural background
51. Could not find your way around campus
52. Had trouble accessing various campus resources