Students' Attitudes Toward Mental Illness: A Macao–U.S. Cross-Cultural Comparison

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The present study compared attitudes toward mental illness among college students in Macao, the United States (U.S.), and Macao students studying in the U.S. A total of 303 undergraduate students participated in the study by completing a self-report survey regarding their perceptions of mental illness. Students in Macao had the most negative attitudes and shame regarding mental illness. Macao students in the U.S. had attitudes intermediate to those of U.S. and Macao students. The findings are generally consistent with the literature and suggest an acculturation effect on the attitudes of Macao students in the U.S.

THE GROWTH OF COMMUNITY MENTAL HEALTH has been accompanied by increasing interest in public attitudes toward mental illness and persons diagnosed as mentally ill. The public continues to perceive mental illness negatively (Ojanen, 1992), and public attitudes appear to be a crucial factor in predicting the success of community care (Chou & Mak, 1998). Ahmed and Viswanathan (1984) found that members of the general public consider persons diagnosed as mentally ill to be dangerous, dirty, unpredictable, and worthless. Such negative attitudes affect funding and recruitment of caregivers for community care programs (Bhugra, 1989). Furthermore, negative attitudes may result in less social support for people diagnosed as mentally ill living in the community. In turn, low levels of social support are associated with lower psychiatric service utilization and poor outcomes for persons diagnosed with severe mental illnesses (Albert, Becker, McCrone, & Thornicroft, 1998). These research findings indicate that public attitudes toward mental illness are important to the efforts of rehabilitating persons diagnosed with a mental illness.

Extant research indicates that there are cross-cultural differences in attitudes and beliefs about mental illness, and similar differences exist among different ethnic groups living in the U.S. For example, research has consistently shown that Chinese living in the U.S. as well as in other nations hold negative views about mental illness. Cheung (1990) and Yang (1989) found that Chinese residing in Hong Kong and Beijing were afraid of and avoided contact with persons labeled as mentally ill and regarded them as a danger to the community. Chinese also reported feeling ashamed to have mental illness in their family (Lee, 1986). Shokoohi-Yekta and Retish (1991) found that, in comparison to U.S. graduate students, Chinese graduate students from mainland China were

Author note. Dr. Lori M. Irving passed away during the final revision of the manuscript. Without Dr. Irving's inspiration and contribution, this publication would have been impossible. Even though Dr. Irving cannot see the publication, her contributions to this study and the field of psychology will always be honored and remembered.

We give special thanks to Dr. Jennifer Katz for her help with administering the surveys to the U.S. students; Holly Cheng for her assistance with translating the survey into Chinese; Alberto Chau, William Cheong, and Rico Tse for their help with administrating the surveys to Macao students. Correspondence concerning this article should be addressed to Elvo Kuai-Long Sou, 3029 SE 90th Place, Portland, OR 97266, USA. Electronic mail may be sent to: elvo_sou@hotmail.com.

 (Vol. 7, No. 1, 13–22 / ISSN 1089-4136). *Faculty Supervisor

more likely to view people diagnosed with a mental illness as dangerous, and to think that they require "coercive handling" and "restrictive intervention."

In addition to holding different attitudes toward mental illness, Chinese and Americans have different patterns of help-seeking behavior when confronted with a mental health issue. When dealing with a mental health issue, Chinese rely heavily on self-help measures, after which they turn to their primary social support network (i.e., family and friends). Chinese turn to professionals, including psychiatrists, counselors, and social workers, only after they have exhausted their personal resources, and this approach results in an extended delay in seeking and receiving help (Cheung, 1986; Lee, 1986). This delay in seeking help from a professional is related to stigma about being seen as having a mental illness, and to the importance that Chinese assign to emotional restraint and "saving face" (Lee, 1986).

Although there are studies investigating attitudes toward mental illness of Chinese living in mainland China, Taiwan, Hong Kong, and the U.S., to our knowledge, there have been no studies of perceptions of mental illness in Macao, a "Special Administrative Region" of China located in the southeast portion of this nation. Macao is a peninsula of approximately 24 square kilometers (9.3 square miles) with a population of 437,500, 95% of whom are Chinese (Macao Statistics and Census Service, 2001). In 1999, Macao was returned to Chinese rule after being governed by Portugal for over four centuries. Because of Macao's unique blend of Chinese and Portuguese cultures as well as its unique social and governmental structures, Macao people's attitudes toward mental illness (and other issues) may differ from those of people in other Chinese regions.

Macao is unfamiliar to many people in the U.S.; therefore, it may be helpful to provide a brief description of Macao and its mental health system. Macao is densely populated and relatively economically advanced. According to the Macao Statistics and Census Service (2001), Macao had a gross domestic product of approximately 49 billion Macao dollars (approximately 6 billion U.S. dollars) in 1999. Despite its favorable economic standing, Macao's mental health system is relatively poor. To the knowledge of the first author, a native Macao citizen, Macao has a psychiatric ward in a government hospital and a newly built psychiatric hospital as inpatient treatment facilities for persons diagnosed as mentally ill. In Macao, there is only one newly built mental health center, which targets mainly emotional disturbances and life adjustment issues, and there are no private counselors or clinical psychologists. In addition, although Macao has three institutes of higher education, none offer baccalaureate or graduate training or degrees in fields related to clinical psychology, counseling, psychiatric social work, or other mental health areas.

Based on research about attitudes toward mental illness among Chinese people, and knowledge about mental health services that are or are not available in Macao, the following hypotheses guided this study: (a) due to the stigma regarding mental illness and persons diagnosed as mentally ill in the Chinese culture, college students in Macao will report having less direct contact with individuals who have a mental illness than college students in the U.S.; (b) due to the dearth of mental health resources (educational and treatment) in Macao, college students from Macao will report being less knowledgeable about mental illness than college students in the U.S.; (c) college students from Macao will hold more negative attitudes toward mental illness and persons diagnosed as mentally ill than college students in the U.S.; (d) college students from Macao will be less willing to seek professional help for a mental health issue than college students in the U.S.; and (e) when needing help for a mental health issue, college students from Macao will be more likely to rely on themselves or their family, whereas college students in the U.S. will be more likely to utilize professional services such as psychotropic medications, counseling, or social work services.

Though the attitudes of the Chinese toward mental illness tend to be negative, they are not unchangeable. Within a context that provides education regarding and support for persons diagnosed with a mental illness, attitudes toward mental illness may become more positive. For example, Shokoohi-Yekta and Retish (1991) found that, relative to Chinese who had lived in the U.S. for a short period of time (i.e., < 2.9 years), Chinese who had lived in the U.S. for a longer time (i.e., > 2.9 years) held more positive attitudes toward mental illness. Fan (1999) observed similar acculturation effects in Australia. To assess such acculturation effects, the present study included a group of Macao students currently attending school in the U.S. We expected that, compared to students enrolled at a university in Macao, Macao students studying in the U.S. would hold more favorable attitudes toward mental illness and persons diagnosed as mentally ill.

Method

Participants

A total of 303 undergraduate students took part in the present study. We recruited participants from three different groups: students enrolled at a univer-

TABLE 1

Demographics of Sampled Groups

Demographics	Participant groups		
	U.S.	Macao	Macao–U.S.
Number of participants	148	138	17
Age			
M	18.97	20.7	20.59
SD	1.38	1.44	2.94
Years living in the U.S.			
M	17.65		2.8
SD	3.83		1.33
Years living in Macao			
M		18.93	16.12
SD		4.08	3.46
Number of months living in other countries[a]			
M	2.30	12.43	7.76
SD	9.65	39.20	22.02
Sex			
Men	37 (25.0)	62 (44.9)[b]	11 (64.7)
Place of birth			
U.S.	136 (91.9)		
Macao		82 (59.4)[bc]	9 (52.9)[c]
Ethnicity			
Caucasian	128 (86.5)		
Chinese		130 (94.2)[b]	17 (100)

Note. Values enclosed in parentheses represent percentages.

[a] Averages do not include individuals who have not lived in another country.

[b] One participant in this group did not respond to the item questions.

[c] The rest of the participants in these groups were predominately born in China or Hong Kong.

sity in the U.S. (n = 148; hereafter referred to as "U.S."), students enrolled at a university in Macao (n = 138; hereafter "Macao"), and students from Macao studying at various universities in the U.S. (n = 17; hereafter "Macao–U.S."; see Table 1). The U.S. students were younger (M = 19.0 years old, SD = 1.4) than the Macao students (M = 20.7 years old, SD = 1.4), $t(281) = -10.29$, $p < .01$, and the Macao–U.S. students (M = 20.6 years old, SD = 2.9), $t(163) = -2.24$, $p < .05$. The Macao and Macao–U.S. students did not differ in age. Most students in the U.S. and Macao groups had lived in their own countries solely, or for most of their lives (U.S. M = 17.6 years; Macao M = 18.9 years). The Macao–U.S. group had lived in Macao for a mean of 16.1 years and in the U.S. for a mean of 2.8 years.

There were fewer male students in the U.S. group (25% men) than in the Macao (44.9% men) and Macao–U.S. groups (64.7% men), $\chi^2(2, N = 302) = 18.83$, $p < .001$. Most students in the U.S. group (91.9%) were born in the U.S.; however, only 59.4% of the Macao and 52.9% of the Macao–U.S. groups were born in Macao (many of the Macao and Macao–U.S. students were born in mainland China or Hong Kong, and these figures are generally consistent with the population of Macao). The majority of the U.S. students were Caucasian (86.5%), and, consistent with birth trends in the Macao population generally, most Macao and Macao–U.S. students were Chinese (94.2% and 100%, respectively).

Materials

The survey used in the present study was adapted from a study of Hong Kong people's attitudes toward persons having a mental illness (Chou & Mak, 1998). We chose this measure because of the availability of Chinese- and English-language versions. The original survey contained 21 Likert-type items that examine people's concerns about mental health (e.g., "I am very concerned about my mental health"), knowledge of mental illness (e.g., "Mental illness is infectious or contagious"), attitudes toward "mental patients" [sic] (e.g., "Mental patients are a burden to society"), and community-based care for individuals diagnosed with a mental illness (e.g., "Psychiatric rehabilitation facilities should be kept far from Hong Kong").

The present study employed a modified version of the survey, which included the original 21 Likert-scale items, but replaced "Hong Kong" with "community" in those questions that asked about services available in the respondent's community. Ratings for these 21 items are made on 5-point scales: 1 = *totally disagree,* 2 = *disagree,* 3 = *neither agree nor disagree,* 4 = *agree,* and 5 = *totally agree.* We also added two objective items to assess help-seeking behavior, and five objective questions to assess participants' (a) amount of contact with people having a mental illness, (b) subjective level of knowledge about mental illness (i.e., how knowledgeable the participants think they are about mental illness), (c) perceptions of the importance of biology and environment in the etiology of mental illness (all above-mentioned items appear in Table 2), (d) source of extant knowledge about mental illness (Table 3), and (e) preference regarding whom to seek out for help with a mental health issue (Table 4). In addition to these questions, we

TABLE 2

Between-Group Analysis of Variance for Survey Responses

Item	Participant groups: U.S. *M*	U.S. *(SD)*	Macao *M*	Macao *(SD)*	Macao–U.S. *M*	Macao–U.S. *(SD)*	*F*	*(df)*
Section 1								
1. Amount of contact with the mentally ill	2.56_a	(1.14)	1.40_b	(.77)	1.76_b	(1.03)	49.1*	(2, 295)
2. Subjective level of knowledge about mental illness	2.24	(.77)	2.12	(.64)	2.18	(.64)	1.0	(2, 300)
4. The importance of environment, as opposed to biology, in the etiology of mental illness	2.60_a	(.94)	3.48_b	(.76)	3.53_b	(.87)	39.2*	(2, 295)
Section 2								
9. Concern for one's physical health[a]	3.45_a	(1.26)	3.90_b	(.80)	4.06_{ab}	(.90)	7.6*	(2, 300)
10. Concern for one's mental health	2.89_a	(1.47)	3.84_b	(.80)	3.94_b	(1.03)	24.9*	(2, 300)
11. Concern for family's mental health	3.21_a	(1.52)	3.92_b	(.76)	4.35_b	(.79)	16.3*	(2, 300)
12. Concern for community's mental health	2.85_a	(1.16)	2.91_a	(.66)	3.88_b	(.78)	9.1*	(2, 299)
13. Unwillingness to live near mental patients	2.67_a	(1.15)	3.43_b	(.84)	3.35_{ab}	(1.17)	20.5*	(2, 299)
14. Unwillingness to live near psychiatric rehabilitation facilities	2.98	(1.20)	3.23	(.81)	3.24	(1.15)	2.1	(2, 299)
15. Belief that mental illness can be treated completely	2.49_a	(.97)	3.45_b	(.82)	3.35_b	(1.06)	40.9*	(2, 298)
16. Belief that mental illness is infectious	1.34_a	(.74)	1.74_b	(.88)	2.41_c	(1.12)	17.4*	(2, 299)
17. Belief that mental illness is the same as "craziness"	1.63_a	(.90)	2.29_b	(.93)	2.65_b	(1.11)	22.8*	(2, 300)
18. Belief that mental illness affects one's whole life	3.70_a	(1.16)	2.95_b	(.94)	4.00_a	(.71)	21.6*	(2, 300)
19. Belief that mental patients should only be kept in psychiatric hospitals, but not other rehabilitative facilities	2.01_a	(.91)	2.69_b	(.87)	2.35_{ab}	(.93)	20.9*	(2, 299)
20. Belief that psychiatric rehabilitative facilities should be far from community	2.07_a	(.97)	2.76_b	(.79)	2.63_{ab}	(.96)	21.4*	(2, 298)
21. Belief that most mental patients are violent or dangerous to others	2.32_{ab}	(.89)	2.59_a	(.77)	1.88_b	(.70)	7.5*	(2, 300)
22. Belief that mental patients are troubles to society	2.28_a	(1.04)	2.95_b	(.77)	2.35_{ab}	(1.06)	19.3*	(2, 299)
23. Belief that mental patients should be kept in psychiatric hospitals until they have completely recovered	2.74	(1.13)	3.02	(.91)	3.41	(1.12)	4.9*	(2, 299)
24. Belief that psychiatric rehabilitative facilities should not be built near another similar type of facility	2.53_a	(.89)	2.94_b	(.68)	3.06_{ab}	(.75)	10.7*	(2, 299)
25. Belief that most people will somehow experience mental health problems	3.09_a	(1.00)	3.45_b	(.77)	4.18_c	(.73)	14.5*	(2, 299)
26. Belief that mental patients are burden to society	1.96_a	(.95)	2.73_b	(.85)	2.18_{ab}	(.81)	26.4*	(2, 299)
27. Belief that the participant will never become a mental patient	3.15	(1.05)	3.01	(.95)	2.44	(.96)	3.8	(2, 297)
28. Not being negative to mental patients as long as they do not cause any troubles	3.82	(1.02)	3.73	(.83)	3.71	(1.31)	0.3	(2, 299)
29. Belief that mental health is as important as physical health	4.54_a	(.77)	4.07_b	(.86)	4.56_{ab}	(.63)	12.7*	(2, 298)
30. Willingness to seek professional help immediately for a mental health problem	4.01_a	(.96)	3.47_b	(.76)	4.06_{ab}	(.90)	14.7*	(2, 299)
31. Feeling ashamed to seek professional help with mental health	2.23_a	(1.16)	2.69_b	(.78)	1.94_a	(1.09)	9.8*	(2, 299)

Note. Ratings for the items in Section 1 were made on 5-point scales ranging from 1 *(no contact at all/not knowledgeable at all/ biology)* to 5 *(constant contact/expert knowledge/environment)*. Ratings for items in Section 2 were made on a 5-point scale: 1 = *totally disagree,* 2 = *disagree,* 3 = *neither agree nor disagree,* 4 = *agree,* 5 = *totally agree.* For all items, means with different subscripts differ significantly at $p < .01$ using the Tukey HSD post hoc comparison.

[a]Group means no longer differed when age was entered as a covariate.

*$p < .01$

TABLE 3

First-Ranked Source of Information About Mental Illness by Group

	Source of information regarding mental illness				
Groups	Mass media *n* (%)	Contact with people who are mentally ill *n* (%)	Friends/family *n* (%)	Classes *n* (%)	Leisure reading materials *n* (%)
U.S.	25 (17.9)	43 (30.7)	22 (15.7)	42 (30.0)	8 (5.7)
Macao	114 (83.2)	7 (5.1)	7 (5.1)	2 (1.5)	7 (5.1)
Macao–U.S.	10 (58.8)	1 (5.9)	1 (5.9)	5 (29.4)	0 (0)
Column total[a]	149 (49.2)	51 (16.8)	30 (9.9)	49 (16.2)	15 (5.0)

Note. $\chi^2(8) = 130.66$, $p < .001$.

[a]Nine participants failed to respond.

added three open-ended questions to assess stereotypes about and knowledge regarding mental illness and individuals having a mental illness.

All new survey items were written in English by the authors and translated into Chinese by an acquaintance of the first author. The translator was a native Chinese speaker currently attending college in the U.S. The U.S. and Macao–U.S. groups received the English version of the survey, and the Macao group received the Chinese version. The Macao and Macao–U.S. participants received instructions to respond to the open-ended questions in the language of their choice (i.e., English or Chinese) in order to obtain linguistically rich responses.

The Macao–U.S. students completed the English version of the survey under the assumption that they were relatively proficient with the English language. We did not formally assess the English language proficiency of the Macao–U.S. participants; however, members of this group had received scores on the TOEFL (a standardized "Test of English as a Foreign Language" that assesses proficiency in reading and listening) that were sufficient to allow them to participate in the U.S. study-abroad program. Additionally, the majority of the Macao–U.S. students were of junior or senior standing, implying that they were proficient enough in English to succeed in upper division college courses.

Procedure

The U.S. sample consisted of students from an Introductory Psychology class in a state university lo-

TABLE 4

First-Ranked Person to Seek Help From for a Mental Health Problem by Group

	Person to seek help from for mental health problems						
Groups	Self *n* (%)	Friends *n* (%)	Family *n* (%)	Physicians *n* (%)	Counselors *n* (%)	Religious personnel *n* (%)	Others *n* (%)
U.S.	12 (8.1)	24 (16.2)	72 (48.6)	22 (14.9)	17 (11.5)	1 (.7)	0 (0)
Macao	7 (5.2)	41 (36.6)	29 (21.6)	24 (17.9)	27 (20.1)	5 (3.7)	1 (.7)
Macao–U.S.	2 (11.8)	8 (47.1)	1 (5.9)	4 (23.5)	1 (5.9)	0 (0)	1 (5.9)
Column total[a]	21 (7.0)	73 (24.4)	102 (34.1)	50 (16.7)	45 (15.1)	6 (2.0)	2 (.7)

Note. $\chi^2(12) = 47.35$, $p < .001$.

[a]Four participants failed to respond.

cated in the Pacific Northwest. The U.S. students participated in the study to fulfill a research requirement for their Introductory Psychology class. The Macao sample consisted of students from a major university in Macao. Due to the difficulty of conducting a systematic sampling overseas, Macao participants were recruited by three acquaintances of the first author (hereafter referred to as "assistants") who were students at the university from which this sample was obtained. The first author provided assistants with verbal instruction to recruit their classmates and acquaintances at school and to administer surveys to these Macao participants. For the convenience of administration, the participants had the option to finish the survey at home or immediately after they received it. Once completed, participants returned the surveys by hand to the assistant who had administered the survey to them. After collecting the completed surveys, the assistants mailed them to the first author.

The Macao–U.S. sample consisted of international students from Macao attending college in the U.S. at the time of data collection. These students were identified and invited to participate by acquaintances of the first author who were also international students from Macao. The Macao–U.S. participants received the survey by mail; once completed, participants mailed the surveys to the second author at Washington State University at Vancouver in a stamped, addressed envelope.

Before completing the survey, participants read a cover letter that explained the nature of the study and ensured voluntary participation and confidentiality. The participants also received the researchers' contact information should they have questions, comments, or concerns after completing the survey. Once the participants finished the survey, each of them received a debriefing sheet that explained the purpose of the study and provided basic information regarding mental illness and how to seek help for a mental health issue.

Results

One-way analyses of variance (ANOVAs) examined between-group differences in responses to objective survey items (we did not analyze open-ended questions because approximately half of Macao students did not respond to these questions). Significant ANOVAs (alpha = .01) were followed by Tukey honestly significant difference (HSD) post hoc comparisons, with a p level of .01. See Table 2 for group means, F values, and HSD comparison results.

Consistent with predictions, the U.S. group reported significantly more contact with individuals having a mental illness than did the Macao and Macao–U.S. groups (Q. 1: Item 1 in Table 2). On the 5-point continuum representing the importance of biology and environment in the etiology of mental illness (1 = *biology* to 5 = *environment),* both Macao and Macao–U.S. groups placed more importance on environmental than biological causes than did the U.S. group (Q. 4). Contrary to predictions, the groups did not differ in their subjective level of knowledge about mental illness (Q. 2).

Compared to the U.S. group, the Macao group was more concerned about their physical and mental health (Q. 9 and Q. 10), and also was less willing to live near persons with a mental illness (Q. 13). Compared to the U.S. group, the Macao group was more likely to believe that mental illness is "infectious" (Q. 16), that mental illness is the same as "craziness" (Q. 17), and that mental illness affects one's whole life (Q. 18). The Macao group also was more likely to believe that people with a mental illness should be kept in psychiatric rather than rehabilitative facilities (Q. 19), that they should be kept in psychiatric hospitals until they have recovered completely (Q. 23), and that psychiatric rehabilitative facilities should be located far from the community (Q. 20). Compared with the U.S., the Macao group was more likely to believe that most people with a mental illness are violent or dangerous (Q. 21), troublesome (Q. 22), and a burden to society (Q. 26). Interestingly, the Macao group was more likely than the U.S. group to believe that mental illness can be treated completely (Q. 15).

The Macao group was more likely than the U.S. group to believe that most people will experience a mental health problem (Q. 25); however, the groups were similar in their belief about whether the respondent him/herself would ever become a mental patient (i.e., would develop a mental disorder and experience its symptoms; Q. 27). Finally, compared to the U.S., the Macao group was less willing and more ashamed to seek professional help for a mental health issue (Q. 30, Q. 31).

For most items, the responses of the Macao–U.S. group fell between those of the Macao and U.S. groups. Exceptions to this pattern were Q. 16 (the belief that mental illness is infectious) and Q. 25 (the belief that most people will somehow experience mental health problems); in both of these cases, the Macao–U.S. group expressed stronger agreement with the items than either the Macao or U.S. group.

Because the U.S. group differed from the Macao and Macao–U.S. groups on age and sex composition (i.e., the U.S. students were younger and predominately women), we repeated all of the analyses with age as a covariate and sex (men, women) as a second categorical independent variable. Covarying the ef-

fects of age eliminated only one significant finding; there were no longer any cultural group differences on "concern for one's physical health" (Q. 9). All other group differences remained significant. There was one main effect for sex; women were more willing than men to live near people with a mental illness (Q. 13), $F(1, 292) = 7.32$, $p < .01$.

Chi-square tests analyzed participants' primary source of information about mental illness (Table 3), and the person from whom participants would first seek help for a mental health issue. Among the U.S. group, 31% stated that contact with an individual who has a mental illness was the major source of their knowledge about mental illness, followed by educational classes (30%), mass media (18%), friends and family (16%), and leisure reading materials (5.7%). Of those participants in the Macao group, 83% received most of their information from mass media, 5.1% from contact with persons having a mental illness, friends and family, and leisure reading materials, and 1.5% from educational classes. Finally, 59% of the Macao–U.S. group received information about mental illness from mass media, 29% from educational classes, and 5.9% from contact with persons having a mental illness and friends and family. There were significant group differences in the most importance source of information about mental illness, $\chi^2(8) = 130.66$, $p < .001$ (Table 3).

Regarding help-seeking behavior, among those participants in the U.S. group, 49% reported "family" as the first person(s) from whom to seek help for a mental health issue, 16% reported friends, 15% physicians, 11% counselors, 8.1% self, and .7% religious personnel. Among the Macao students, 37% would first seek help from friends, 22% from family, 20% from counselors, 18% from physicians, 5.2% from self, 3.7% from religious personnel, and .7% from other persons. Finally, 47% of Macao–U.S. participants would first seek help from friends, 23% from physicians, 12% from self, and 5.9% each from family, counselors, and other persons. No one in the Macao–U.S. group reported that they would seek help from religious personnel. There were significant group differences regarding persons from whom one would seek help for a mental health issue, $\chi^2(12) = 47.35$, $p < .001$ (Table 4).

We examined the effect of acculturation on attitudes toward mental illness by tallying and comparing the number of significant group differences observed between the U.S. and Macao groups, between the U.S. and Macao–U.S. groups, and between the Macao and Macao–U.S. groups. An acculturation effect would be indicated if the number of significant differences between the Macao and U.S. groups (i.e., the most culturally "distinct" groups) were larger than the number of significant differences between the Macao–U.S. and U.S. participant groups, and if the number of significant differences between the Macao and Macao–U.S. participant groups was similar to the number of significant differences between the U.S. and Macao–U.S. groups. Out of 23 analyses (see Section 2 in Table 2), the Macao and U.S. participant groups differed significantly on 16 items; however, the Macao–U.S. and U.S. participant groups differed significantly on only 7 items, and the Macao–U.S. and Macao participant groups differed significantly on 6 items (Table 5). This pattern of results suggests the presence of an acculturation effect.

Discussion

Results provide mixed support for the hypotheses. Consistent with predictions, compared to the U.S. students, the Macao students had less contact with, and more negative attitudes toward, people having a mental illness. Additionally, the Macao students were more ashamed about and less willing to seek professional help for a mental health issue. Contrary to predictions, the Macao students were not more likely than the U.S. students to rely on self-help in dealing with mental health problems. Consistent with predictions, the Macao–U.S. students had attitude scores regarding mental illness that were in between those of the U.S. and Macao students, suggesting that exposure to different cultural beliefs regarding mental illness may have influenced their attitudes (i.e., acculturation).

As predicted, compared to the U.S. students, the Macao students reported significantly less contact with people diagnosed as mentally ill. The Chinese assign great importance to restraining intense emotions and to "saving face" (i.e., avoiding public humiliation). For this reason, individuals and families in Macao may

TABLE 5

Number of Significantly Different Responses Among Groups

	Groups		
Groups	U.S.	Macao	Macao–U.S.
U.S.		16	7
Macao	16		6
Macao–U.S.	7	6	

Note. A total of 26 items were included in the analysis.

hide a family member's mental illness from others. Consequently, the public may have infrequent contact with individuals "known" to have a mental illness. Unfortunately, a lack of exposure to individuals diagnosed as mentally ill does not provide Macao residents with an opportunity to challenge misconceptions and stereotypes that they may have about mental illness and persons diagnosed as mentally ill.

Our prediction that the Macao students would hold more negative attitudes toward mental illness than the U.S. students was supported. The survey contained 11 items that address stigma regarding mental illness. Compared to the U.S., the Macao group agreed more strongly with (i.e., had more negative attitudes regarding) 7 of these items. Together, responses to these items indicate that the Macao students were more likely to view individuals with a mental illness as a burden to society, and to believe that treatment should involve being socially restricted and housed at a remote facility.

Interestingly, the Macao and U.S. students were similar in their personal willingness to live near a psychiatric rehabilitation facility, and in their belief that people diagnosed as mentally ill could be violent. This result stands in contrast to the finding that, compared to European Americans, Asians perceive individuals with a mental illness as more dangerous (Whaley, 1997). It is possible that the lack of cross-cultural differences in the perception of dangerousness is due to recent high-profile crimes in the U.S. committed by individuals diagnosed as mentally ill (e.g., Russell Weston, diagnosed with schizophrenia, shot and killed two officers in the U.S. Capitol Building; Pizello, 1998). Indeed, Angermeyer and Matschinger (1996) found that media reports of attacks by persons diagnosed as mentally ill increase the public's belief that people with mental illness are dangerous and unpredictable.

We observed a contradictory pattern of results on items that assessed help-seeking behavior. Responses to Likert-type items confirmed our hypothesis that the Macao students would be less willing than the U.S. students to seek professional help for a mental health problem. Compared to the U.S. students, the Macao students were less willing to immediately seek professional help for a mental health problem, and more ashamed to seek professional help for a mental health problem. Contrary to predictions, however, the Macao students were not more likely than the U.S. students to rely on self-help or family support when dealing with a mental health problem. Only 5% of the Macao students (compared to 8% of the U.S. students) indicated that self-help would be their first choice if faced with a mental health problem; more common first choices among the Macao students were friends (37%), family (22%), counselors (20%), and physicians (18%). Among the U.S. students, nearly half (49%) reported that they would first seek help from family, followed by friends (16%), physicians (15%), and counselors (11%).

Our findings regarding help-seeking behavior contradict previous research, which indicates that Chinese are more likely than European Americans to rely on self-help measures. We speculate that our discrepant findings are related to how "help-seeking" questions were worded in the survey used in the present study. In the present study, help-seeking items assessed willingness to seek help for a generic "mental health problem"; these items did not assess participants' willingness to seek help for different levels (e.g., chronic vs. acute) or types (e.g., schizophrenia vs. acute stress reaction) of mental health problems. This generic language does not take into account that help-seeking behavior is influenced by the type of mental health problem an individual faces (Boey, 1999).

Because of the generic wording of these items, participants may have responded according to their unique definition of "mental health problem." The Macao students, who were more likely than the U.S. students to equate mental illness with "craziness," may have reflected on a chronic mental illness such as schizophrenia. The U.S. students, on the other hand, may have reflected on a more acute mental health problem (e.g., reaction to a trauma or stressor). With a chronic mental illness in mind, the Macao students may have opted to seek professional help rather than seek help from friends and family. This same image of a "chronic mental illness" may have increased the Macao students' sense of shame about and resistance to needing professional help. We attempted to clarify participants' understanding of "mental health problems" by adding three open-ended questions in the survey that assessed participants' stereotypes of an individual with a mental illness. However, because approximately half of the Macao students did not respond to these open-ended questions, we were unable to use these items to help interpret our findings. For a clearer understanding of cultural differences in willingness to seek professional help, future research should ask about willingness to seek help for different types of mental health problems. Researchers must also understand how the culture under observation defines "mental illness" and what it means to be "mentally ill." If a culture does not believe that certain symptoms or behaviors reflect a mental disorder, people in this culture may not seek help for these symptoms and behaviors. Hence,

findings associated with help-seeking behavior will be influenced by a culture's definition of mental illness.

Macao's mental health system is poorly developed; there is little community mental health care, no baccalaureate or graduate training in counseling or mental health, and no infrastructure in place to advocate for the mentally ill. For this reason, we predicted that the Macao students would report lower levels of knowledge about mental illness than the U.S. students. Contrary to this prediction, the Macao and U.S. students reported having a similar amount of knowledge about mental illness. This puzzling result may be due to how *knowledge* was assessed on the survey. Respondents evaluated their subjective level of knowledge about mental illness, but not objective knowledge (e.g., factual knowledge about mental illness). However, the fact that the Macao students were more likely than the U.S. students to believe that mental illness is infectious and synonymous with "craziness" suggests that the Macao students were less knowledgeable about mental illness.

The study included the Macao–U.S. group in order to examine the effects of acculturation on attitudes toward persons diagnosed as mentally ill. Inferential analyses indicated that, compared to the Macao students, the Macao–U.S. students held more positive attitudes (i.e., closer to the Americans' attitudes) toward mental illness. Two specific findings are worth noting here. Compared to the Macao group, the Macao–U.S. group was significantly less likely to believe that most mental patients are violent or dangerous to others, and less likely to report feeling ashamed to seek professional help for a mental health problem. These group differences have important practical implications for at least two reasons. First, the (inaccurate) belief that all mentally ill persons are dangerous is the most important predictor of public attitudes that support social restrictions of, and socially remote facilities for, people with mental illness (Corrigan, 2000). Second, shame associated with help seeking is the major reason for underutilization of mental health services by the Chinese (Boey, 1999). Group differences between the Macao and Macao–U.S. students on these items suggest that negative attitudes toward mental illness and its treatment may change in a social milieu that encourages more positive attitudes and policies regarding mental illness and individuals diagnosed as mentally ill.

Although these results are suggestive of acculturation effects, this study did not explore the process by which acculturation might have occurred. One possible mechanism, however, is education. Twenty-nine percent of the Macao–U.S. students, in contrast to 1.5% of the Macao students, reported that educational classes had been their most important source of information about mental illness. Education about mental illness is one of the most promising methods for reducing stigma regarding mental illness (Penn & Martin, 1998). Education about mental illness may account for the more positive attitudes that the Macao–U.S. students held toward persons with mental illness. Whereas moving to a country that holds more progressive attitudes (i.e., encouraging "acculturation") is an imprudent strategy for changing attitudes toward mental illness, successful education programs are transferable, and can be modified to meet the needs of specific cultural groups (Corrigan & Penn, 1999; Penn et al., 1994; Penn & Martin, 1998).

Findings of the present study must be evaluated with additional limitations in mind. First, we selected our survey because of the availability of Chinese- and English-language versions. However, to our knowledge, research has not established the consistency of the Chinese and English versions. Moreover, the survey items created for this study did not receive a backward translation to ensure reliability between the Chinese and English versions; therefore, group differences may be due to inherent differences in the meaning of survey items after translation.

A second limitation is that our "acculturation" interpretation is based on the assumption that the Macao–U.S. and Macao students had similar attitudes before the Macao–U.S. students left for the U.S. However, these attitudinal differences may have existed before the Macao–U.S. students traveled to the U.S. People who can afford to study abroad are generally higher in socioeconomic status (SES); therefore, group differences may be attributable to SES rather than acculturation. In future research, more participant background information should be collected to ensure that groups are comparable on relevant characteristics such as SES. Third and finally, the Macao–U.S. sample was small and recruitment was nonrandom. Consequently, the findings related to this sample should be interpreted with caution.

Given the connection between public attitudes toward mental illness and treatment of individuals diagnosed as mentally ill, research on cross-cultural and ethnic group differences in attitudes toward mental illness is useful for developing more appropriate mental health education programs and services for people diagnosed as mentally ill and their families (Shokoohi-Yekta & Retish, 1991). In the present study, for example, compared to the U.S. students, the Macao students reported more negative attitudes toward mental illness and those diagnosed as mentally ill. Compared to the Macao students, however,

the Macao–U.S. students held more positive attitudes toward mental illness, suggesting that negative stereotypes about mental illness can change in a context that encourages positive attitudes and policies regarding mental illness and people with mental illness. Future research is needed to address the limitations of the present study, and (thereby) to replicate and validate our results. If our findings are supported, it may be helpful to more formally evaluate the need for education programs to improve attitudes, social support, and treatment options available for individuals diagnosed as mentally ill in Macao.

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