Published in final edited form as:

Asian J Psychiatr. 2015 February ; 13: 16–22. doi:10.1016/j.ajp.2014.12.005.

Illness Beliefs of Chinese American Immigrants with Major Depressive Disorder in a Primary Care Setting

Justin A. Chen, MD, MPH^{a,b,c,d}, Galen Chin-Lun Hung, MD, ScM^{d,e}, Susannah Parkin, BA^a, Maurizio Fava, MD^{a,c}, and Albert S. Yeung, MD, ScD^{a,b,c}

Justin A. Chen: jchen37@partners.org; Galen Chin-Lun Hung: galenhung@tpech.gov.tw; Susannah Parkin: sparkin@partners.org; Maurizio Fava: mfava@partners.org; Albert S. Yeung: ayeung@partners.org

^aMassachusetts General Hospital, Depression Clinical and Research Program, 1 Bowdoin Square 6th Floor, Boston, MA 02114

^bSouth Cove Community Health Center, Department of Behavioral Health, 885 Washington St. Boston, MA 02111

^cHarvard Medical School, 25 Shattuck St, Boston, MA 02115

^dHarvard School of Public Health, 677 Huntington Ave, Boston, MA 02115

^eDepartment of Addiction Medicine, Taipei City Psychiatric Center, Taipei City Hospital, Taiwan

Abstract

Underutilization of mental health services in the U.S. is compounded among racial/ethnic minorities, especially Chinese Americans. Culturally based illness beliefs influence help-seeking behavior and may provide insights into strategies for increasing utilization rates among vulnerable populations. This is the first large descriptive study of depressed Chinese American immigrant patients' illness beliefs using a standardized instrument. 190 depressed Chinese immigrants seeking primary care at South Cove Community Health Center completed the Explanatory Model Interview Catalogue, which probes different dimensions of illness beliefs: chief complaint, labeling of illness, stigma perception, causal attributions, and help-seeking patterns. Responses were sorted into categories by independent raters and results compared to an earlier study at the same site and using the same instrument. Contrary to prior findings that depressed Chinese individuals tend to present with primarily somatic symptoms, subjects were more likely to report chief complaints and illness labels related to depressed mood than physical symptoms. Nearly half reported they would conceal the name of their problem from others. Mean stigma levels were significantly higher than in the previous study. Most subjects identified psychological stress as the most likely cause of their problem. Chinese immigrants' illness beliefs were notable for psychological explanations regarding their symptoms, possibly reflecting increased acceptance of Western biomedical frameworks, in accordance with recent research. However, reported stigma

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Principal/corresponding author (to whom all correspondence may be addressed): Justin A. Chen, MD, MPH, MGH DCRP, 1 Bowdoin Square, 6th Floor, Boston, MA 02114, USA, Tel: +1-617-724-6532, Fax: +1-617-724-3028, jchen37@partners.org.

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regarding these symptoms also increased. As Asian American immigrant populations increasingly accept psychological models of depression, stigma may become an increasingly important target for addressing disparities in mental health service utilization.

Keywords

Illness beliefs; major depressive disorder; Chinese American; culture; stigma

1. Introduction

The tremendous personal, societal, and economic burden of depression is magnified among minority populations in the U.S., in part due to differences in rates of mental health service utilization (Alegría et al., 2008; Harman et al., 2004; Murray and Lopez, 1997; Virnig et al., 2004; Young et al., 2001). In particular, Chinese Americans have been found to greatly underutilize psychiatric services (Abe-Kim et al., 2007). A recent review suggests that the stubborn persistence of such racial/ethnic disparities in rates of utilization is likely attributable to multiple causes, including cultural variations in symptom expression and attribution, practical barriers, and underlying moderating factors affecting Asian Americans' experience and disclosure of psychological problems, such as stigma, shame, and emotion inhibition, (Sue et al., 2012). Such conclusions add to a growing body of evidence derived from a variety of disease processes suggesting that culturally influenced illness explanatory models determine help-seeking behavior, selection of pathways to care, adherence to treatment, and satisfaction (Karasz et al., 2003; Kleinman, 1977; McCabe and Priebe, 2004; Office of the Surgeon General (US) et al., 2001; Sussman et al., 1987). Some investigators have specifically recommended studying illness beliefs in order to address disparities in the utilization of mental health resources among ethnic and minority populations (Yeung and Kam, 2005).

Prior research in this area has consistently found that depressed patients of East Asian and South Asian cultural origin tend to emphasize somatic rather than psychological symptoms and favor interpersonal or contextual rather than biological explanations for their distress, as compared with their Western counterparts (Ekanayake et al., 2012; Karasz, 2005; Karasz et al., 2007; Kleinman, 1977; Yeung and Kam, 2005). Karasz has generalized this finding further to state that "non-Western, nonwhite, and non-middle-class individuals suffering from depression are more likely to exhibit somatic disturbances in medical settings than are Western middle class individuals" (Karasz et al., 2007). A variety of explanations for these findings have been proposed.

Early somatization models derived from psychoanalytic theories proposed that an emphasis on somatic symptoms represents a primitive form of psychopathology in which physical expressions of distress are substituted for emotional ones (Karasz et al., 2007). However, such "repression-based" explanations conflict with growing evidence that even among contemporary Western middle-class populations, depression often presents solely with somatic symptoms, (Gureje et al., 1997; Jadhav et al., 2001; Piccinelli and Simon, 1997). The large and evidently common overlap between physical symptoms and psychological

syndromes is unsurprising given that the diagnostic criteria for major depressive disorder (MDD) include disturbances in sleep, energy, and appetite.

Other investigators have proposed that Asian patients lack the ability to differentiate emotions (Leff, 1973) or are alexithymic (Le et al., 2002; Zhu et al., 2007). However, such hypotheses are contradicted by evidence that depressed Chinese Americans and South Asians readily reported depressed mood when explicitly asked (Jadhav et al., 2001; Ryder et al., 2008; Yeung and Kam, 2005). In a large study comparing Chinese and Euro-Canadian subjects' performance on various measures of alexithymia, Dere and colleagues proposed that differences between the groups could be explained primarily by culturally based variations in the importance placed on emotions, rather than actual deficits in emotional processing in the Chinese group (Dere et al., 2012).

Kleinman, and more recently Kirmayer, suggested that apparent cultural differences in illness beliefs may be influenced by practical considerations. Kleinman proposed that somatization could be understood as one "idiom of distress" which, within a specific cultural context, is more likely to achieve personal goals—e.g. respite from work or resolution of family conflict (Kleinman, 1988). Under this framework, Chinese somatization could be understood as a matter of symptom emphasis rather than a completely different experience of distress (Ryder and Chentsova-Dutton, 2012). This theory, however, does not fully explain why members of a wide range of non-Western cultural groups with depression also primarily present with complaints of somatic disturbances.

Among immigrants, level of acculturation and education may also help shape illness explanatory models (Angel and Thoits, 1987; Karasz, 2005). For instance, given that the biopsychiatric disease model of depression is more common in Western societies (Keyes, n.d.), Chinese immigrants' views regarding the cause of depressive symptoms would be expected to change from a physical "malady of the heart" to a psychological disease category as a result of increasing levels of exposure to American culture (Miller, 2006). Conceptualization of depression as a psychological illness is likely to also be influenced by other immigration and acculturation-related factors such as age of arrival, length of stay, and education (Jorm et al., 2000; Kuo and Roysircar, 2004; Parker et al., 2005).

To date, in-depth exploration of illness beliefs has been challenged by difficulty assembling sufficient sample sizes of study subjects from homogeneous racial/ethnic groups (particularly those with diagnosed depression), language barriers, and a lack of standardized research instruments. Reporting on the illness beliefs of an outpatient sample of 175 Han Chinese in Hunan and 107 Euro-Canadians in Toronto using adaptations of several scales, Ryder and colleagues found that patients from both populations reported depressed mood and sadness, and concluded that in the generation since Kleinman's work, "available cultural scripts for the presentation of emotional distress and social suffering appear to have changed markedly" (Dere et al., 2013). Inclusion in the study simply required participants to endorse "at least one core symptom of depression or neurasthenia," rather than to meet criteria for major depressive disorder.

Jadhav and colleagues also attempted a cross-cultural comparison in their study of the illness beliefs of 47 depressed Caucasian subjects in London and 80 Indian subjects in Bangalore using the Explanatory Model Interview Catalogue (EMIC) (Jadhav et al., 2001). Developed by Mitchell Weiss and first reported in 1992, the EMIC integrates research methods from epidemiology and anthropology to assess local representations of illness from the perspective of persons with a designated health problem (Weiss et al., 1992). Jadhav's group found that illness concepts were similarly diverse in both Caucasian and Indian populations, and that depressed Britons frequently reported somatic idioms of depression when specifically probed (Jadhav et al., 2001).

Karasz and colleagues performed one of the only studies to compare two different cultures occupying a similar geographic region in their survey of 37 married, upper middle-class European-American women from affluent New York City neighborhoods versus 35 married, working-class, non-English-speaking, South Asian women from an immigrant community in Queens, New York (Karasz et al., 2007). Utilizing a mixed-methods approach, they found that the South Asians group's illness representations correlated significantly less with a biopsychiatric scale, and significantly more with a situational scale, than did European Americans' (Karasz et al., 2007). However, the subjects in this study were not depressed, and the focus of the questions was on "medically ambiguous" rather than depressive symptoms. Similarly, Parker and colleagues compared explanatory attributions of Chinese-Australian and non-Chinese-Australian respondents regarding hypothetical symptoms such as fatigue, insomnia, and low appetite, though again participants were not themselves depressed (Parker et al., 2005).

Most of the prior research on illness beliefs of depressed Chinese individuals, including the work of Kleinman and Ryder, was conducted in China or Taiwan. One exception to this is Yeung and Kam's report on illness beliefs of Chinese American patients in Boston in 1998-9 using the EMIC, which found a predominance of somatic complaints and conceptualizations of depressive symptoms, though with a relatively small sample (Yeung and Kam, 2005). The purpose of the current exploratory study was to systematically characterize the illness beliefs of a large population of depressed Chinese immigrants identified through primary care using a semi-structured instrument, and to compare the results to Yeung and Kam's earlier report on a smaller sample from the same clinic site and utilizing the same instrument. Specifically, the EMIC queries patients about multiple dimensions of illness behaviors and beliefs: chief complaint, conceptualization and labeling of illness, perceptions of stigma, causal attributions, and help-seeking patterns. The EMIC has been previously validated among depressed individuals in diverse cultural contexts (Weiss et al., 2001). In line with recent research in this area (Dere et al., 2013), we hypothesized that illness beliefs of the study subjects would demonstrate greater consistency with Western explanatory models than were demonstrated in the earlier study.

2. Materials and methods

This exploratory study was conducted using data collected from a randomized controlled trial investigating the efficacy of Telepsychiatry-based Culturally Sensitive Collaborative

Treatment (TCSCT) of depressed Chinese Americans in a primary care setting, the design of which has been reported elsewhere (Yeung et al., 2011).

Between 2009 and 2012, 24,181 Chinese American immigrants who sought primary care at South Cove Community Health Center in Boston were screened for depression using the Chinese translation of the 9-item Patient Health Questionnaire (CB-PHQ-9). Of the 950 patients with at least moderate levels of depression, as determined by scores ≥ 10 , 520 declined to participate, 111 were ineligible due to already receiving treatment for MDD, and 78 were excluded for other reasons (e.g., not being of Chinese origin or an immigrant, disqualifying health problems, etc.) Of the 241 remaining who gave informed consent to a Chinese-speaking study clinician, 190 had a diagnosis of MDD confirmed via the Mini International Neuropsychiatric Interview (MINI) and were randomized to receive either TCSCT or usual care. Regardless of randomization arm, all consented subjects were administered the EMIC questionnaire at baseline to assess illness beliefs. The study was approved by the Partners HealthCare Human Research Committee.

The EMIC was administered in Cantonese or Mandarin by bilingual study clinicians (medical doctors) or bachelors-educated research assistants who had been trained in the use of the EMIC instrument, and responses were translated into English. The EMIC probes multiple dimensions of illness belief. In part 1, subjects' chief complaints were elicited via general questioning (e.g., "What brings you to this visit? What's primarily bothering you?") In part 2, subjects were asked to name the problem for which they were seeking care (e.g., "What do you call it? Do you have a name for this condition?"). In part 3, they were asked what they called their problem when discussing it with others. Part 4 is a stigma assessment tool comprised of 12 questions on a Likert agreement scale asking subjects about their attitudes regarding their symptoms, as well as how they feel their symptoms are perceived by others, with one reverse-coded item (Weiss et al., 1992). Part 5 is designed to elicit subjects' beliefs regarding the cause of their illness, and includes a series of specific prompts within a variety of domains (Medical, Psychological, Ingestion, Congenital/hereditary, etc.). After hearing these prompts, subjects were asked to name the single most likely cause of their illness. Part 6 is designed to elicit subjects' beliefs regarding help-seeking behaviors, with prompts similarly being provided among several domains including Self Help/Lay Help, Spiritual, General Health, Mental Health, and various types of Alternative Treatments. After hearing these prompts, subjects were again asked to identify the single most helpful type of treatment sought.

Subjects' responses for parts 1–3 were sorted into discrete categories by two independent raters (JAC and GCH). The results of categorization were compared and cases of disagreement were discussed and resolved in consensus where possible. In some instances, categories were modified based on the results of this discussion. Ultimately, categories for both Chief Complaint and Name of the Problem were standardized to enhance comparability of responses between questions. Most of the subjects' perceived causes for symptoms did not fit into the usual EMIC categories (Toxic/Ingestion, Spiritual, etc.), but instead corresponded to specific psychosocial or environmental problems. Rather than collapse all these responses under the general EMIC category of "Psychological Stress," we chose to generate sub-categories to better capture the richness of the subjects' original responses. In

the event of ongoing disagreement, the opinion of a third rater (ASY) was sought. All discrepancies were successfully resolved in this manner.

3. Results

Table 1 presents demographic characteristics of the 190 subjects in this study. As shown, 63.2% were women; 51.6% had less than a high school level of education; 56.8% were married or cohabiting, and 46.8% worked full- or part-time. All participants (100%) were by definition immigrants with MINI-verified major depression. Mean PHQ-9 score was 14.7, indicating moderately severe levels of depression at baseline.

Table 2 presents the categorized self-reported chief complaints of study subjects. Table 3 presents subjects' responses when asked to name their problem, and Table 4 presents their responses when asked what they would call their problem when telling someone else about it. Because subjects often gave multiple responses to each of these questions, and it was impossible retrospectively to determine which was "primary," all responses were categorized and are reported in these three tables, so the total number of responses in each table adds up to greater than 190. The "Other" category encompasses responses that were vague or otherwise did not clearly fit within any of the proposed categories (e.g., "Don't feel well," "my health," "fear," etc.)

Subjects were most likely to report a chief complaint in the category of Depressed mood/unhappiness/mood problems (52.1%), followed by Psychosocial stressors (38.9%), Depressive neurovegetative symptoms (31.6% — e.g., poor sleep, poor appetite, low energy), and Depressive psychological symptoms (24.2% — e.g., rumination, difficulty concentrating, agitation).

Subjects were most likely to identify the name of their problem as Depressed mood/unhappiness/mood problems (35.3%), followed by Depression (as a mental disorder) (32.6%) and Don't know (11.6%).

When asked what term they would use to tell someone else about their problem, 40% of subjects spontaneously reported they would not tell anyone else about their problem, with an additional 5.8% reporting they would conceal it from most people. Other common categories of responses included: Depressed mood, unhappiness, mood problems (18.4%), Depression (mental disorder) (8.9%), and Depressive neurovegetative symptoms (7.9%).

Based on the EMIC's 12-item stigma scale, subjects had a mean stigma score of 15.7 (95% CL 14.6, 16.8; SD 7.6, range 0–36).

Table 5 presents the categorized perceived causes of the problem. Subjects overwhelmingly endorsed psychosocial causes (68.4%), which have been further subcategorized into specific stressors. The most common subcategory was Problems with romantic relationship or marriage (24.7%), followed by Work/job problem (14.7%) and Problems with family relationship other than spouse (11.6%)

Table 6 presents the most important type of help sought. Subjects overwhelmingly reported finding Self help/lay help most important (75.3%), with many fewer citing Spiritual (9.5%), General health (4.7%), or Mental health (4.7%) as most helpful.

Concordance statistics for the independent raters' categorizations were recorded. Most of the initial discordance was easily resolved after minimal discussion during which the thought process behind the ratings was clarified. A further description of some of the issues that arose during this phase is outlined in the Discussion section below. The final concordance after seeking the advice of a third rater (ASY) was 100% for all items.

4. Discussion

Although prior research suggests that depressed Asians tend to emphasize somatic rather than psychological symptoms, the Chinese immigrant subjects in this sample were actually more likely to endorse a chief complaint related to depressed mood (52.1%) than depressive neurovegetative symptoms (such as poor energy, appetite, or sleep) and non-neurovegetative physical symptoms (such as pain or headache) combined (41.6%). Similarly, our results join a growing body of evidence contradicting prior suggestions that Asians lack the ability to differentiate emotions or are alexithymic. The great majority of subjects identified the name of their problem as either a disturbance in mood (35.3%) or specifically depression as a mental disorder (32.6%), though 11.6% did not know what to call it.

These responses represent a marked shift from previous findings regarding Chinese Americans' illness beliefs drawn from a very similar patient population. In Yeung and Kam's earlier study of 29 depressed Chinese American immigrant patients recruited from the same clinic site in 1998-9 [13], 76% of the subjects complained chiefly of somatic symptoms, with only 14% endorsing a chief complaint related to psychological symptoms of depression, and none spontaneously complaining of depressed mood ($X^2=42.4$, $p<0.0001$ for difference in reports of somatic vs. non-somatic symptoms between studies). In the earlier study, when asked to label their condition, 55% of subjects reported "I don't know," 17% responded, "Not a [diagnosable medical] illness," and 17% attributed their symptoms to pre-existing medical problems (Yeung and Kam, 2005). When asked if they would agree with a diagnosis of major depressive disorder, 48% of the respondents reported that they never heard of major depression (Yeung et al., 2004). The increased emphasis on depressed mood seen in our study is consistent with recent findings by Ryder's group (Dere et al., 2013).

Subjects in our sample had a mean stigma score of 15.7 (SD 7.6, range 0–36), which was significantly higher than the earlier study's mean score of 7.0 (SD=12, range 0–36; $p=0.0006$ for difference in mean stigma scores by two-tailed t-test). (Yeung and Kam, 2005) Lower stigma scores in the earlier sample could be explained by a tendency to attribute symptoms to physical rather than mental causes. Further evidence for stigma against the conceptualization of depression as a mental disorder in the current study is provided by the fact that nearly half of the subjects (40%) reported that they would conceal the name of their problem from everyone, with an additional 5.8% reporting they would conceal it from all but a few trusted confidants—a striking result not reported in the earlier study. Similarly, although 32.6% identified the name of their problem as depression as a mental disorder,

only 8.9% reported they would use this terminology when discussing it with others. A common distinction made by subjects was that their symptoms were caused by being depressed but not by depression as a specific mental disorder.

Consistent with prior research, most subjects in the current study (68.5%) identified a psychological stress as the most likely cause of their problem, with romantic relationship/marriage the most commonly cited psychological stress (24.7% of the total), followed by work/job problems (14.7%) and problems with family relationships other than spouse (11.6%). However, significant minorities of subjects reported a belief in medical (19.5%) or psychological (16.8%) causes. When combined, all relationship-based stresses (including marital, other household relationships, in-laws, or unspecified interpersonal conflicts) accounted for fully 40.6% of all responses. This high proportion is consistent with a known emphasis in Chinese populations on strong social networks, particularly within a caregiving context (Aranda and Knight, 1997; Cheng et al., 2013).

A substantial minority of responses indicated that factors related to immigration contribute to depressive symptomatology and causal attribution. About 9% of respondents cited “loneliness” as a chief complaint. Combining all subjects who cited immigration problems (7.9%), acculturation/language problems (3.2%), and loneliness/social isolation (3.2%) as the most likely cause of their symptoms accounts for 14.1% of the entire sample, which is on par with the number of people who cited a problem with their work/job as the primary cause. “Linguistic isolation” and lack of social supports have been found to be unique risk factors for depression in immigrant Latino communities (Ornelas and Perreira, 2011), though such research has been limited by difficulties measuring these constructs in translation (Rhodes et al., 2013).

The categorization process provoked lively discussions regarding how best to interpret subjects’ responses. For instance, a number of the subjects reported a chief complaint of worry regarding a specific stressor (e.g. job, money, family member, etc.). While we chose to categorize these complaints as psychosocial stressors, it is possible that a more pervasive underlying pattern of worry or anxiety may have better reflected these subjects’ chief complaints in some cases. Several of the subjects reported feeling “useless” as either a chief complaint or perceived cause of their problem. It was unclear whether this complaint should be categorized as a depressive psychological symptom equivalent to guilt or worthlessness, or whether it may represent a culturally specific complaint whose difference from the Western construct should be preserved. Negative perceptions of “uselessness” could reflect a Confucian-based emphasis on fulfillment of social obligations (Zhang and Liu, 2007). Such subtle cultural variation in symptom expression may be overlooked when relying solely on Western diagnostic instruments (Wong et al., 2012).

As described, most of the subjects attributed their symptoms to specific psychosocial or environmental problems, akin to what might be recorded on Axis IV in the former Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) multiaxial evaluation model. Perceived psychosocial/interpersonal etiologies of distress may support the use of psychological rather than pharmacologic treatment strategies in this population.

Indeed, consistent with prior research, the vast majority of subjects (75%) preferred non-medical “self help/lay help” methods for addressing their symptoms.

The results of this study have clinical implications for health care practitioners who work with Chinese immigrant populations. In contrast to previous findings, this study demonstrates that most participants were both familiar with the concept of clinical depression and comfortable spontaneously reporting it when asked in a confidential setting. However, the tremendous degree of stigma endorsed by participants and their reluctance to share the diagnostic label with others (which was not seen in the earlier study) suggest that providers should be sensitive to a heightened need for privacy and discretion in discussing the diagnosis. Chinese immigrants who meet criteria for major depression should be queried about possible relationship stressors contributing to their presentation. Furthermore, patients are likely to favor treatment recommendations involving self management rather than pharmacologic interventions, in part because of an understanding of the etiology of depression as psychosocial rather than biochemical in nature. Clinicians may also find that asking patients about feelings of “uselessness” is more effective than asking about “guilt or worthlessness.”

These results must be interpreted within the context of the study design, and several limitations may exist. This investigation was limited by the lack of a different-race comparison group, which will be addressed in a future study. Because subjects’ responses were translated on the spot and recorded manually by study personnel, it was not possible to attempt to clarify ambiguous responses or check for the accuracy of translations. The fact that subjects were allowed multiple responses limits our ability to pinpoint one specific response to each question, or to easily perform statistical analyses comparing responses for different subgroups (e.g., males vs. females, those with more years of education vs. those with fewer). Future studies should address these limitations and attempt to replicate this study design at different clinical sites and with different racial/ethnic populations, to help elaborate potential targets for intervention.

We utilized an iterative qualitative process based on consensus discussions to generate our own categories of illness beliefs, with the goal of ultimately producing standardized categories that could be utilized consistently across multiple sections of the EMIC. The purpose of this strategy was to retain more of the subjects’ self-reported responses in the presentation of data. One criticism of this approach is that the categories generated may not represent valid constructs. For example, the distinction between depressive neurovegetative versus psychological symptoms, or depressed mood versus depression as a mental disorder, may be considered arbitrary or invalid. An alternative approach would have been to utilize previously reported instruments—e.g., Karasz’s biopsychiatric situational model scales, or Ryder’s somatic and psychological subscales derived from a composite of several different instruments—or to use statistical methods such as factor analysis to identify symptom clusters. However, there is no “gold standard” for assessing these constructs, including Karasz’s or Ryder’s approaches. In this initial exploratory analysis, we felt the iterative categorization approach was best suited for capturing the richness of the subjects’ original responses, as well as for comparing to the prior South Cove study, which also utilized the EMIC.

There is the possibility of selection bias since 520 of the 950 positively screened patients declined to participate. These patients may have held more traditional illness beliefs, been less acculturated, or otherwise differed from the patients who did participate. On the other hand, subjects currently receiving treatment for MDD were ineligible to participate, and these patients may have possessed the opposite characteristics. Subjects' responses may have been influenced by the study design because they were collected only after disclosure of the diagnosis of depression and full informed consent regarding the nature of the study. Responses elicited within such a research framework may not reflect typical patient attitudes and behaviors within a real-world clinical setting. Information about participants' length of stay in the U.S. was not collected, limiting our ability to assess the impact of acculturation on illness beliefs. Finally, the subjects in this study were a relatively homogeneous group with characteristics suggesting a low level of acculturation (e.g., all were monolingual immigrants, and the majority had less than a high school education.) This homogeneity benefits internal consistency of responses, but may reveal less about illness beliefs of other Asian Americans, limiting generalizability.

A major strength of this study is its collaboration with South Cove, one of the largest community health centers in the U.S. catering predominantly to a Chinese American patient population. Asian Americans have been found to be a particularly challenging group to recruit for research studies [41,42]. Additionally, the study's robust sample size and collection of mixed qualitative and quantitative data are unusual in minority health services research.

Our findings suggest several promising future directions for investigation, including examining associations between stigma, acculturation, and health outcomes. For example, this study lays the groundwork for future investigations into possible associations between particular types of illness beliefs and degree of perceived stigma. Additionally, future research should investigate whether the endorsement of psychosocial stressors as the dominant perceived etiology of symptoms has implications for treatment approaches in these populations.

In sum, this study presents the first large-scale categorization of illness beliefs of a depressed Chinese American immigrant population using a standardized instrument. Our findings suggest that subjects' illness beliefs have changed since prior investigations, and that current conceptions of depression appear to be more Western and psychologically based than previously thought. However, the association between education, degree of acculturation, and "psychological-mindedness" has yet to be determined. These results also demonstrate significantly greater levels of stigma than were found in a previous study at the same site and using the same instrument, suggesting that greater acceptance of Western biopsychiatric explanatory models among Chinese Americans may be accompanied by a concomitant increase in mental illness-related stigma. Thus, as acculturation among Asian American immigrant populations increases, stigma may become an increasingly important target for addressing disparities in mental health service utilization.

Acknowledgments

We thank Shan Wong, Pauline Tan, Bobo Tang, Aya Williams, and James Doorley for their contributions to the study.

Funding: The original randomized controlled trial on which these data are based was supported by a grant awarded to Dr. Yeung by the National Institute of Mental Health (NIMH R01 MH079831; PI Albert Yeung, MD, ScD).

References

- Abe-Kim J, Takeuchi DT, Hong S, Zane N, Sue S, Spencer MS, Appel H, Nicdao E, Alegría M. Use of mental health-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American Study. *Am. J. Public Health.* 2007; 97:91–98. [PubMed: 17138905]
- Alegría M, Chatterji P, Wells K, Cao Z, Chen C, Takeuchi D, Jackson J, Meng X-L. Disparity in depression treatment among racial and ethnic minority populations in the United States. *Psychiatr. Serv. Wash. DC.* 2008; 59:1264–1272.
- Angel R, Thoits P. The impact of culture on the cognitive structure of illness. *Cult. Med. Psychiatry.* 1987; 11:465–494. [PubMed: 3319427]
- Aranda MP, Knight BG. The influence of ethnicity and culture on the caregiver stress and coping process: a sociocultural review and analysis. *The Gerontologist.* 1997; 37:342–354. [PubMed: 9203758]
- Bistricky SL, Mackin RS, Chu JP, Areán PA. Recruitment of African Americans and Asian Americans with late-life depression and mild cognitive impairment. *Am. J. Geriatr. Psychiatry Off. J. Am. Assoc. Geriatr. Psychiatry.* 2010; 18:734–742.
- Cheng S-T, Lam LCW, Kwok T, Ng NSS, Fung AWT. The social networks of Hong Kong Chinese family caregivers of Alzheimer's disease: correlates with positive gains and burden. *The Gerontologist.* 2013; 53:998–1008. [PubMed: 23371974]
- Dere J, Falk CF, Ryder AG. Unpacking Cultural Differences in Alexithymia The Role of Cultural Values Among Euro-Canadian and Chinese-Canadian Students. *J. Cross-Cult. Psychol.* 2012; 43:1297–1312.
- Dere J, Sun J, Zhao Y, Persson TJ, Zhu X, Yao S, Bagby RM, Ryder AG. Beyond “somatization” and “psychologization”: symptom-level variation in depressed Han Chinese and Euro-Canadian outpatients. *Front. Psychol.* 2013; 4:377. [PubMed: 23818884]
- Ekanayake S, Ahmad F, McKenzie K. Qualitative cross-sectional study of the perceived causes of depression in South Asian origin women in Toronto. *BMJ Open.* 2012; 2:e000641.
- Gureje O, Simon GE, Ustun TB, Goldberg DP. Somatization in cross-cultural perspective: a World Health Organization study in primary care. *Am. J. Psychiatry.* 1997; 154:989–995. [PubMed: 9210751]
- Harman JS, Edlund MJ, Fortney JC. Disparities in the adequacy of depression treatment in the United States. *Psychiatr. Serv. Wash. DC.* 2004; 55:1379–1385.
- Jadhav S, Weiss MG, Littlewood R. Cultural experience of depression among white Britons in London. *Anthropol. Med.* 2001; 8:47–69.
- Jorm AF, Christensen H, Medway J, Korten AE, Jacomb PA, Rodgers B. Public belief systems about the helpfulness of interventions for depression: associations with history of depression and professional help-seeking. *Soc. Psychiatry Psychiatr. Epidemiol.* 2000; 35:211–219. [PubMed: 10941996]
- Karasz A. Cultural differences in conceptual models of depression. *Soc. Sci. Med.* 2005; 60:1625–1635. 1982. [PubMed: 15652693]
- Karasz A, Dempsey K, Fallek R. Cultural differences in the experience of everyday symptoms: a comparative study of South Asian and European American women. *Cult. Med. Psychiatry.* 2007; 31:473–497. [PubMed: 17985219]
- Karasz A, Sacajiu G, Garcia N. Conceptual Models of Psychological Distress Among Low-income Patients in an Inner-city Primary Care Clinic. *J. Gen. Intern. Med.* 2003; 18:475–477. [PubMed: 12823655]

- Keyes, C. The interpretive basis of depression. In: Kleinman, A.; Good, B., editors. *Culture and Depression*. Berkeley: University of California Press; n.d.
- Kleinman, A. *Social Origins of Distress and Disease: Depression, Neurasthenia, and Pain in Modern China*. New Haven: Yale University Press; 1988.
- Kleinman AM. Depression, somatization and the “new cross-cultural psychiatry”. *Soc. Sci. Med.* 1977; 11:3–10. [PubMed: 887955]
- Kuo BCH, Roysircar G. Predictors of Acculturation for Chinese Adolescents in Canada: Age of Arrival, Length of Stay, Social Class, and English Reading Ability. *J. Multicult. Couns. Dev.* 2004; 32:143–154.
- Kwong K, Chung H, Cheal K, Chou JC, Chen T. Depression care management for Chinese Americans in primary care: a feasibility pilot study. *Community Ment. Health. J.* 2013; 49:157–165. [PubMed: 22015960]
- Leff JP. Culture and the Differentiation of Emotional States. *Br. J. Psychiatry.* 1973; 123:299–306. [PubMed: 4746107]
- Le H-N, Berenbaum H, Raghavan C. Culture and alexithymia: mean levels, correlates, and the role of parental socialization of emotions. *Emot. Wash. DC.* 2002; 2:341–360.
- McCabe R, Priebe S. Explanatory models of illness in schizophrenia: comparison of four ethnic groups. *Br. J. Psychiatry. J. Ment. Sci.* 2004; 185:25–30.
- Miller G. Mental health in developing countries. China: healing the metaphorical heart. *Science.* 2006; 311:462–463. [PubMed: 16439639]
- Murray CJ, Lopez AD. Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *Lancet.* 1997; 349:1436–1442. [PubMed: 9164317]
- Office of the Surgeon General (US), Center for Mental Health Services (US), National Institute of Mental Health (US). *Mental Health: Culture, Race, and Ethnicity: A Supplement to Mental Health: A Report of the Surgeon General, Publications and Reports of the Surgeon General*. Rockville (MD): Substance Abuse and Mental Health Services Administration (US); 2001.
- Ornelas IJ, Perreira KM. The role of migration in the development of depressive symptoms among Latino immigrant parents in the USA. *Soc. Sci. Med.* 2011; 73:1169–1177. 1982. [PubMed: 21908089]
- Parker G, Chan B, Tully L, Eisenbruch M. Depression in the Chinese: the impact of acculturation. *Psychol. Med.* 2005; 35:1475–1483. [PubMed: 16164771]
- Piccinelli M, Simon G. Gender and cross-cultural differences in somatic symptoms associated with emotional distress. An international study in primary care. *Psychol. Med.* 1997; 27:433–444.
- Rhodes SD, Daniel J, Song E-Y, Alonzo J, Downs M, Reboussin BA. Social support among immigrant Latino men: a validation study. *Am. J. Health Behav.* 2013; 37:620–628. [PubMed: 23985284]
- Ryder AG, Chentsova-Dutton YE. Depression in cultural context: “Chinese somatization,” revisited. *Psychiatr. Clin. North Am.* 2012; 35:15–36.
- Ryder AG, Yang J, Zhu X, Yao S, Yi J, Heine SJ, Bagby RM. The cultural shaping of depression: somatic symptoms in China, psychological symptoms in North America? *J. Abnorm. Psychol.* 2008; 117:300–313. [PubMed: 18489206]
- Sue S, Yan Cheng JK, Saad CS, Chu JP. Asian American mental health: a call to action. *Am. Psychol.* 2012; 67:532–544. [PubMed: 23046304]
- Sussman LK, Robins LN, Earls F. Treatment-seeking for depression by black and white Americans. *Soc. Sci. Med.* 1987; 24:187–196. 1982. [PubMed: 3824001]
- Virnig B, Huang Z, Lurie N, Musgrave D, McBean AM, Dowd B. Does Medicare managed care provide equal treatment for mental illness across races? *Arch. Gen. Psychiatry.* 2004; 61:201–205. [PubMed: 14757597]
- Weiss MG, Doongaji DR, Siddhartha S, Wypij D, Pathare S, Bhatawdekar M, Bhawe A, Sheth A, Fernandes R. The Explanatory Model Interview Catalogue (EMIC). Contribution to cross-cultural research methods from a study of leprosy and mental health. *Br. J. Psychiatry. J. Ment. Sci.* 1992; 160:819–830.
- Weiss MG, Jadhav S, Raguram R, Vounatsou P, Littlewood R. Psychiatric stigma across cultures: Local validation in Bangalore and London. *Anthropol. Amp Med.* 2001; 8:71–87.

- Wong R, Wu R, Guo C, Lam JK, Snowden LR. Culturally Sensitive Depression Assessment for Chinese American Immigrants: Development of a Comprehensive Measure and a Screening Scale Using an Item Response Approach. *Asian Am. J. Psychol.* 2012; 3:230–253. [PubMed: 23504503]
- Yeung A, Chang D, Gresham RL, Nierenberg AA, Fava M. Illness beliefs of depressed Chinese American patients in primary care. *J. Nerv. Ment. Dis.* 2004; 192:324–327. [PubMed: 15060408]
- Yeung A, Hails K, Chang T, Trinh N-H, Fava M. A study of the effectiveness of telepsychiatry-based culturally sensitive collaborative treatment of depressed Chinese Americans. *BMC Psychiatry.* 2011; 11:154. [PubMed: 21943315]
- Yeung, AS.; Kam, R. Illness beliefs of depressed Asian Americans in primary care. In: Georgiopoulos, AM.; Rosenbaum, JF., editors. *Perspectives in Cross-Cultural Psychiatry*. Philadelphia: Lippincott Williams & Wilkins; 2005. p. 21-36.
- Young AS, Klap R, Sherbourne CD, Wells KB. The quality of care for depressive and anxiety disorders in the United States. *Arch. Gen. Psychiatry.* 2001; 58:55–61. [PubMed: 11146758]
- Zhang W, Liu G. Childlessness, psychological well-being, and life satisfaction among the elderly in China. *J. Cross-Cult. Gerontol.* 2007; 22:185–203. [PubMed: 17347870]
- Zhu X, Yi J, Yao S, Ryder AG, Taylor GJ, Bagby RM. Cross-cultural validation of a Chinese translation of the 20-item Toronto Alexithymia Scale. *Compr. Psychiatry.* 2007; 48:489–496. [PubMed: 17707259]

Highlights

- Illness beliefs influence help-seeking behavior and service utilization
- Chinese immigrants' beliefs regarding depression symptoms were assessed using a standardized instrument
- We found that these beliefs have become more consistent with Western biomedical models
- This shift has been accompanied by an increase in stigmatizing views regarding these symptoms

Table 1

Demographic characteristics

		N	%
Sex	Male	70	36.8
	Female	120	63.2
Age in years (Mean $\pm$ SD)		49.9 $\pm$ 14.5	
Years of education	Grade 6 or less	29	15.3
	Grade 7–12	69	36.3
	Graduated high school	35	18.4
	College: partial or complete	39	20.5
	Graduate school: partial or complete	17	8.9
Marital status	Single	27	14.8
	Married/cohabiting	104	56.8
	Separated	18	9.8
	Divorced	20	10.9
	Widowed	14	7.7
Employment status	Full time	52	27.3
	Part time	37	19.5
	Homemaker	34	17.9
	Student	12	6.3
	Laid off	18	9.5
	Disabled	6	3.2
	Retired	31	16.3
Severity of depression: PHQ-9 total score (Mean $\pm$ SD)		14.7 $\pm$ 4.6	

Table 2

Chief complaints (multiple responses allowed)

	N	%
Depressed mood, unhappiness, mood problems	99	52.1
Psychosocial stressors	74	38.9
Depressive neurovegetative symptoms ¹	60	31.6
Depressive psychological symptoms ²	46	24.2
Nervous, worry, anxiety	20	10.5
Non-neurovegetative physical symptoms, pain	19	10.0
Loneliness	17	8.9
Medical illness	4	2.1
Depression (mental disorder)	3	1.6
Other	13	6.8

Table 3

Name of your problem (multiple responses allowed)

	N	%
Depressed mood, unhappiness, mood problems	67	35.3
Depression (mental disorder)	62	32.6
Don't know	22	11.6
Depressive neurovegetative symptoms ¹	18	9.5
Nervous, worry, anxiety	12	6.3
Psychosocial stressors	11	5.8
Depressive psychological symptoms ²	4	2.1
Non-neurovegetative physical symptoms, pain	3	1.6
Medical illness	3	1.6
Other	11	5.8

Table 4

Name for telling someone else (multiple responses allowed)

	N	%
Conceal from everyone	76	40.0
Depressed mood, unhappiness, mood problems	35	18.4
Depression (mental disorder)	17	8.9
Depressive neurovegetative symptoms ¹	15	7.9
Conceal from most people	11	5.8
Nervous, worry, anxiety	9	4.7
Don't know	8	4.2
Psychosocial stressors	7	3.7
Depressive psychological symptoms ²	5	2.6
Physical symptoms	1	0.5
Loneliness	1	0.5
Other	15	7.9

¹) Depressive neurovegetative symptoms include disturbance in sleep or appetite, or low energy

²) Depressive psychological symptoms include rumination, difficulty concentrating, agitation/irritability

Table 5

Perceived cause (multiple responses allowed)

	N	%
Psychological stress	130	68.4
<i>Problems with romantic relationship or marriage</i>	47	24.7
<i>Work/job problem</i>	28	14.7
<i>Problems with family relationship other than spouse</i>	22	11.6
<i>Financial problem</i>	19	10.0
<i>Family illness-bereavement</i>	16	8.4
<i>Immigration problems</i>	15	7.9
<i>Problems with in-law</i>	6	3.2
<i>Lonely/social isolation</i>	6	3.2
<i>Acculturation/language problems</i>	6	3.2
<i>School/study problems</i>	3	1.6
<i>Family-child care</i>	3	1.6
<i>Housing</i>	3	1.6
<i>Personal illness</i>	2	1.1
<i>Interpersonal conflicts</i>	2	1.1
<i>Other</i>	4	2.1
Medicinal (<i>injury/surgery, virus-germs-infection, physical-biochemical, etc.</i>)	37	19.5
Psychological (<i>minds-thoughts-worry, personality, family upbringing</i>)	32	16.8
Ingestion (<i>food-water, malnutrition, alcohol smoking, drugs, medicine, etc.</i>)	3	1.6
Don't know	3	1.6
Congenital/hereditary (<i>heredity, congenital defects</i>)	1	0.5
Other	14	7.4

Table 6

Most Important Type of Help Sought (multiple responses allowed)

	N	%
Self help/lay help (<i>self care, exercise, reading, friends/relatives, etc.</i>)	143	75.3
Spiritual (<i>faith healers, astrology, healing temple-church, prayer, etc.</i>)	18	9.5
General health (<i>drug store-pharmacist, internal medicine, primary care, etc.</i>)	9	4.7
Mental health (<i>psychiatrist, psychotherapist</i>)	9	4.7
Nothing works	6	3.2
Alternative treatment from others (<i>homeopathy, herbal, acupuncture, etc.</i>)	5	2.6
Alternative self-treatment (<i>stress management, qi-gong, etc.</i>)	2	1.1
Other	11	5.8

Table 7

Categorization Concordance Statistics

Question	Initial Concordance	Concordance after Minimal Discussion	Final Concordance
Chief Complaint	127 (66.8%)	158 (83.2%)	190 (100%)
Name of Problem	176 (92.6%)	185 (97.4%)	190 (100%)
Name for Others	168 (88.4%)	179 (94.2%)	190 (100%)
Perceived Cause	140 (73.7%)	189 (99.5%)	190 (100%)
Perceived Help	176 (92.6%)	186 (97.9%)	190 (100%)