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Variation of Depressive Symptoms Between American and Chinese Cancer Patients Measured on the Hamilton Depression Rating Scale

Amy Zhang, PhD
Associate Professor
France Payne Bolton School of Nursing
Case Western Reserve University (CWRU)
Samson Pavilion, 9501 Euclid Ave.
Cleveland, OH 44106
216-368-0968

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Abstract

Study purpose. This study compared American (Black and White) and mainland Chinese cancer patients to identify differences in depressive symptoms and sociocultural influence.

Methods. Eighty-one African American, Caucasian, and Chinese patients with nonmetastatic (stage I-III) cancers were enrolled and interviewed. The Hamilton Depression Rating Scale (HAM-D) was administered. Simple statistics and ANOVA were performed to compare sample characteristics and group differences on the HAM-D total score and 17 items.

Findings. Chinese patients reported significantly severer depression than Caucasian patients on the HAM-D total score (p=.024). They reported significantly more guilt (p=.003) and sluggishness (p=.004) than Caucasian and African American patients, and more agitation (i.e. irritability) than Caucasian patients (p=.002). Chinese patients also reported significantly more suicidal ideation (p=.014) and poorer insight into illness experience (p=.003), but less difficulty with falling asleep (p=.003) than African American patients. Overall, Chinese patients had lower education (p=.014), income (p=.014), and more diagnosis of stage III cancer (p=.008).

Conclusion. The identified symptomatic differences suggest that cultural changes, social, and medical environments have an influence on the manifestation of depression in respective societies. It is important to adopt contextualized treatment approaches to cancer patients' depression that is shaped by culture.

Keywords: depressive symptoms, culture, race, cancer.

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Depression is one of the most common comorbidities among cancer patients and is associated with poorer treatment adherence, reduced quality of life, and increased mortality (Grenard et al., 2011). Depressive symptoms manifest differently across different populations (Bailey, Mokonogho, & Kumar, 2019). African American, Caucasian, and Chinese cancer patients represent groups with distinct cultural backgrounds, beliefs about illness, and healthcare experiences. These cultural differences may influence how depressive symptoms are perceived, reported, and treated.

In comparison with depressed Caucasians, depressed African Americans have shown fewer affective symptoms (e.g., sadness) and more somatic symptoms such as pain and fatigue (Zhang, Gary, & Zhu, 2015). In particular, they exhibited hesitancy to use the word "depression" and a tendency to report sleep disturbances (Zhang &Gary, 2013). On a global scale, depressed Chinese reported more somatic symptoms and fewer affective symptoms as compared to the predominantly White American population (Kleiman, 1982; Dear et al., 2013) The observed symptomatic differences have been interpreted by multiple explanations, including a higher burden of chronic diseases, underreporting behavior, low literacy, insensitivity of depression measurement, and cultural influence (Bailey et al., 2019). For instance, traditional Chinese culture values emotional restraint and maintenance of social harmony, which may discourage expressions of mental suffering (Yik & Chen, 2023). Despite the symptomatic similarity between African Americans and Chinese in reference to Caucasians, there has not been a direct comparison of the three racial groups.

Kleinman's self-explanatory model (1980, 1988) explains how the experience and symptoms of disease are shaped by cultural values. According to this model, individuals synthesize their inner psychobiological state and sociocultural reality, as well as existing healthcare systems, to make sense of their sickness experience. The psychobiological states are undifferentiated experiences, but the cognitive processes employed to interpret the psychobiological states vary by culture. This cognitive process, loaded with cultural values, determines how the psychobiological states are perceived, labeled, and manifested.

Three decades have passed since the conversation about the cultural variation of depressive symptoms took place in the late 1980s. Both American and Chinese societies have undergone rapid changes and become culturally more open and diverse. With the change of time and cultural values, the symptom manifestation of depression is expected to evolve. The United States and the People's Republic of China are two influential countries with distinct cultural heritages. A comparison of depressive symptoms of cancer patients in the two countries can be informative. Therefore, depressive symptoms from three racially distinct groups− African American, Caucasian American and oversea Chinese cancer patients−were analyzed in this study to identify differences in depressive symptoms and potential cultural influences. The knowledge gained can be used to promote culturally appropriate recognition and treatment strategies for cancer-related depression.

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Methods

This study used two study samples of cancer patients. The first sample contains 34 depressed African Americans and 17 depressed Caucasian Americans who were enrolled between 2006 and 2009 in Northeast Ohio, U.S. The second sample contains 30 depressed Chinese individuals who were enrolled between 2018 and 2019 in Beijing, P.R. China. All subjects were identified through hospital registry databases or physician referrals within major academic hospitals where the hospital IRBs issued research approvals. Subject inclusion criteria were a diagnosis of nonmetastasized cancer (stage I-III); the two most common cancers (breast and prostate) for Americans and the four most common cancers (breast, prostate, stomach, and colorectal) for Chinese. The exclusion criteria included (1) having metastatic cancer, (2) receiving hormonal therapy, and (3) preexisting schizophrenia, bipolar disorders, or other psychotic disorders.

Trained researchers reviewed medical charts and/or physician referrals to identify potentially eligible patients and then contacted them by mail, phone call, or in-hospital meeting. During this contact, demographic and medical information were collected on a checklist. Patients' depression status was screened using the Center for Epidemiologic Studies-Depression Scale (CES-D) for Americans due to its good sensitivity to African Americans (Rozario & Menon, 2010), and the Hospital Anxiety and Depression Scale-Depression subscale (HADS-D, Chinese version) for Chinese because HADS-D is used commonly in medically ill populations and specifically in cancer patients without inclusion of somatic symptoms (Zigmond & Snaith, 1983). The Chinese HADS-D has good internal consistency, acceptable concurrent validity, and construct validity (Li et al., 2016). Research staff also administered the Mini International Neuropsychiatric Interview (MINI) Chinese version 5.0 (Si et al., 2009) to Chinese patients to rule out bipolar and psychotic disorders. Both the CES-D and HADS-D have good validity against the MINI diagnostic interview and performed well for depression screening without a significant difference (Stafford et al., 2014). Eligible patients were consecutively enrolled and invited to an interview at which written consent was obtained. Detailed recruitment processes have been published elsewhere (Zhang et al., 2015; Zhang & Tang, 2024).

To assess depressive symptoms at the invited interview, research staff administered the 17-item Hamilton Depression Rating Scale (HAM-D17) because it contains both mental and physical symptoms of depression and has well-established psychometric properties (Hamilton, 1960; American Psychiatric Association, 2008). The Chinese version of the 17-item Hamilton Depression Rating Scale (CHDS) was administered to Chinese patients. As a culturally adapted version of HAM-D, the CHDS has demonstrated excellent interrater reliability, satisfactory internal consistency, and good construct validity in Chinese populations. Evidence supports the comparability of depression severity ratings obtained from CHDS and HAM-D across cultural contexts (Zheng et al., 1988). Both HADM-D17 and CHDS were administered and scored in a similar fashion to ensure consistency in measurement.

Descriptive statistics for demographic and medical treatment variables were performed on continuous variables, and simple statistics (i.e., t-test, Fisher's exact test, and Chi-square test)

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were used to compare subgroups (i.e., depressed African American, Caucasian, and Chinese patients) on these variables. Further, ANOVA was performed to examine group differences on the total score and each item's score of HAM-D17. Bonferroni post hoc test was performed for each pairwise comparison, controlling the family-wise error rate. We used SPSS software to perform various statistical tests, and the criterion for statistical significance was maintained at a 0.05 level.

Results

Statistical tests show that there was no significant difference among the three groups on age (averaging 54 to 60 years old per group), gender (29% to 47% of males per group), and employment status (30% to 65% working). However, significantly more Chinese patients were married (96.7% vs. 30.3% and 58.8%, respectively; $p \leq .001$), living with an average of one more person at home (mean=3.2, s.d.=1.2; p=.013), and had fewer diagnosed diseases (mean=1.4, s.d.=1.3; $p \leq .001$) than African American and Caucasian patients. Chinese patients also had a significantly lower level of education (60% vs. 17.6% high school education or less; p=.014) than Caucasian patients and a higher proportion of stage III cancer (50% vs. 10.7%; p=.008) than African American patients. The type of cancer diagnosis was about evenly split in the African American and Chinese groups, while the Caucasian group had more breast cancer (70.6%) and fewer prostate cancer diagnosis (29.4%). Annual household income was classified into four categories based on local socioeconomic contexts. The 4-level categories include < $15,000, $15000-$24,999, $25,000-$49,999, and $50,000 and over for the Americans, and <¥70,000, ¥-70,000 -¥-100,000, ¥-110,000 -¥-300,000, and ¥-310,000 and over for the Chinese. Caucasian patients reported a significantly higher level of household income (58.3% vs. 13% and 17.9% at Level 4, respectively; p=.014) than African American and Chinese patients.

[insert Table 1 here]
ANOVA analysis shows that Chinese patients had a significantly higher level of depressive symptoms in the total score of HAM-D17 (F=3.9, p=.024) than Caucasian patients. Chinese patients reported feeling guilty (F=6.2, p=.003; item#2) and sluggish movement (F=6, p=.004; item#8) at a significantly higher level than African American and Caucasian patients. They also reported significantly greater agitation (F=6.7, p=.002; item#9) than Caucasian patients, and more suicidal thoughts (F=4.5, p=.014; item#3) and denial of depression (F=6.5, p=.003; item#17) than African American patients. However, African American patients reported more difficulty in falling asleep (F=6.3, p=.003; item#5) than Chinese patients.
[insert Table 2 here]

Discussion

This study compared three racial groups that lived within distinct socioeconomic and cultural contexts from two geopolitical regions. The depression measure HAM-D17 has been validated in respective American and Chinese populations. However, this study revealed significant group differences in depressive symptoms that warrant careful consideration.

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First, Chinese patients reported significantly severer depressive symptoms than Caucasian patients (p=.024). They also reported stronger feelings of guilt (p=.003) and more sluggishness in speech or movement (p=.004) than Caucasian and African American patients, as well as more suicidal ideation (p=.014) than African American patients. It is possible that Chinese patients were more depressed than Caucasians due to lower socioeconomic status (e.g., lower education and income) or having cancer at an advanced stage (III) in this study. However, Chinese patients were not significantly different from African American patients in terms of the severity of depressive symptoms, and they had fewer diagnosed diseases than both African American and Caucasian patients. Such evidence suggests another possibility: Chinese patients are not "reticent" about mental problems nowadays, or at least they are more open in self-reporting compared to African American patients. Considering a decade-long interval between selecting the American sample and the Chinese sample, the change of time and associated cultures is also a plausible explanation and can be investigated in future studies.

Regardless of their similar symptom experiences, Chinese patients showed significantly less insight into the cause of their illness experience (p=.003) than African American patients. Literature shows that African Americans are more reluctant than Caucasians to consider "depression" for a reason of their illness experience, likely due to stigma held in communities (Alang, 2016). The current study finds that Chinese patients are even more reluctant than African American patients to accept "depression" as a cause of their illness experience and, in fact, as presented elsewhere, the majority of them rejected the word "depression" (Zhang & Tang, 2024). The observed tendency toward denial among Chinese patients may be partially related to lower educational attainment in this study. However, this phenomenon is unlikely to be explained solely by limited education or mental health stigma and may reflect broader cultural influences. For example, there may be less acceptance of Western biomedical conceptualizations of mental illness and a greater propensity to attribute symptoms to alternative causes within a cultural context in which traditional Chinese medicine (TCM) continues to play a significant role. Kleinman (1982) examined this phenomenon extensively within the Chinese sociocultural context, arguing that Chinese individuals' interpretations of depressive experiences are shaped primarily by culturally embedded norms, values, and beliefs. The present finding is consistent with his observations and suggests that these cultural influences have remained salient despite the passage of several decades.

Another interesting finding of this study concerns sleep disturbance. Sleep disturbance has long been identified as one of the top complaints from depressed African American and Chinese patients **(**Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006; Ayalon & Young, 2003**.)** However, African American patients in this study had significantly more difficulty falling asleep than Chinese patients (p=.003), while reporting similar problems with staying asleep or returning to sleep after early wake-up. Difficulty with falling asleep can result from stress, poor sleep habits, underlying medical conditions, and other environmental or hereditary factors (Solelhac, Raffray, Lombardi, 2026; Nguyen, Bubu, Ding, & Lincoln, 2024; Jaqua, Moore, Tran, & Grace-Abraham, 2025; Leigh, Hudson, & Byles, 2016). Evidence indicates that insomnia with delayed

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sleep was common among depressed Chinese cancer patients and was associated with late-night rumination about cancer-related stressors (Zhang & Tang, 2024). Such somatic symptoms and related distress are often taken seriously within Chinese culture. Thus, these patients may have benefited from a pluralistic healthcare approach that incorporates both psychiatric medications and traditional Chinese medicine (TCM) interventions (Bi et al., 2023; Chuang, Tsai, Wu, & Liao, 2024; Zhang et al., 2023). In addition, most Chinese patients lived with a spouse and other family members, and the availability of family support may have facilitated help-seeking and treatment adherence aimed at improving sleep. In contrast, the finding that African American patients reported the most severe insomnia suggests that access to and adequacy of medical treatment, lifestyle, and other environmental factors (e.g., night noise, work schedule, and caregiving support), in addition to rumination and psychological factors, should be considered when developing a treatment plan for these patients.

Agitation or irritability is commonly observed among people suffering from depression and is associated with immunological inflammation that is heightened during cancer treatment (Zhang, Ganocy, Owusu, & Gao, 2022; Wood, Nail, Gilster, Winters, & Elsea, 2006). African American cancer patients have shown significantly more irritability than non-depressed African American cancer patients but no significant difference from Caucasian cancer patients (Zhang et al., 2015). However, in this study, Chinese patients reported significantly greater agitation or irritability than depressed Caucasian patients ($p=.002$) and were not different from African American patients. This higher level of agitation or irritability is likely associated with more severe depression among these Chinese patients. The finding confirms the commonality of experiencing agitation or irritability among cancer patients across races, cultures and time, and suggests that immunological inflammation associated with cancer and its treatment be better managed to improve Chinese cancer patients' mood.

Overall, this study demonstrates that depressive symptoms may manifest differently among cancer patients across contemporary societies. Although socioeconomic and medical explanations are plausible as mentioned above, cultural influences appear to play an important role, particularly in the recognition and treatment of depression in non-Caucasian cultures. When patients interpret depressive experiences through different cultural lenses, they may express depressive symptoms in distinct ways and consequently pursue different forms of treatment. This presents challenges for the detection, assessment, and treatment of depression across diverse populations. Identifying culturally salient symptoms and culturally appropriate treatment approaches is essential for improving treatment outcomes. Therefore, the present findings underscore the importance of adopting a contextualized approach to the treatment of depression that takes into account the socioeconomic and cultural circumstances of individual patient populations.

This study has several important limitations, including small sample sizes, differences in the demographic and medical characteristics of the patient groups, and a nearly 10-year interval between sample recruitment periods. Socioeconomic and medical variables were not controlled

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for in the analysis because of missing data and the limited sample size. Consequently, the findings may have differed had these variables been taken into account. Furthermore, because the American and Chinese samples were assessed at different time points, the observed symptom patterns may have been influenced by sociocultural changes occurring over time. If both groups had been assessed during the same period, particularly when Chinese society was more culturally conservative, the symptomatic differences might have appeared either more or less pronounced. In addition, other factors associated with cultural change over time may have influenced the findings but were not examined in this study. Therefore, the results should not be generalized to broader populations of cancer patients. Nevertheless, the findings provide valuable insights into the cross-cultural manifestations of depressive symptoms and highlight the importance of incorporating culturally diverse approaches into future research and treatment efforts for depression in cancer patients.

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Conflict of Interest Statement

The authors declare no conflict of interest.

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