

Regular Article

Differences in psychiatric symptoms among Asian patients with depression: A multi-country cross-sectional study

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Aim: The aim of this study was to compare the symptomatic and clinical features of depression among five groups of patients with major depressive disorder (MDD) living in China, Korea, Malaysia/Singapore, Taiwan, and Thailand.

Methods: Consecutive consenting adults (aged 18–65) who met DSM-IV criteria for non-psychotic MDD – based on the Mini International Neuropsychiatric Interview – and who were free of psychotropic medication were evaluated in a cross-sectional study. Depressive symptoms were evaluated using the 10-item Montgomery–Asberg Depression Rating Scale (MADRS) and the 13-item depression subscale of the Symptoms Checklist 90-Revised (SCL-90-R). In addition, the 10-item SCL-90-R Anxiety Subscale was completed. ANCOVA were conducted, adjusting for confounders: age, completion of secondary education, marital status, work status, religion, index episode duration, and depressive severity. For the magnitude of differences, a threshold of 0.10 was taken as the

minimum effect size representing clinical significance, and an effect size of 0.25 was considered moderate.

Results: Four MADRS symptoms differentiated these five groups, the most prominent being ‘lassitude’ and ‘inner tension’. Nine SCL-90-R depression items also differentiated the groups, as did eight SCL-90-R Anxiety Subscale items. The MADRS lassitude item had the largest effect size (0.131). The rest of those statistically significant differences did not exceed 0.10.

Conclusion: MDD is more similar than different among outpatients in these diverse Asian countries. The between-country differences, while present and not due to chance, are small enough to enable the use of common clinician and self-report rating scales in studies involving Asians with MDD from various ethnic backgrounds.

Key words: Asian, depression, depressive disorders, ethnicity, symptom.

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The authors wish it to be known that, in their opinion, the first three authors should be regarded as joint first authors.

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DEPRESSIVE DISORDERS ARE a major public health problem in most countries. In 2004, the World Health Organization estimated that approximately 151 million people across the world suffer from unipolar depressive disorder, of which 80 million live in South-East Asia and the Western Pacific region.¹ Unipolar depressive disorder is a leading cause of disability. It is the fourth leading cause of disability-adjusted life years (DALY) in South-East Asia, and the second leading cause of DALY in the Western Pacific region.

Previous findings suggest the controversy of differences in depressive symptomatology among racial/ethnic groups. For the most parts of such symptomatology, US individuals are likely to respond similarly to the symptoms used for the diagnosis of major depression across English-speaking racial and ethnic groups.² Two large cross-cultural studies have found similar patterns of depressive syndrome across countries.^{3,4} Another small head-to-head study also reported that the core symptoms of depression are common in both Japanese and Australian patients.⁵ In contrast, findings from the West suggest that ethnic differences in depressive symptoms do exist. Such differences could be observed even in studies carried out in a single state or country, among immigrants, and ethnic minorities.^{6–9} In a cross-study analysis, Chang *et al.*¹⁰ also found that compared to their US counterparts, Koreans with major depressive disorder (MDD) are more likely to have 'low energy' and 'concentration difficulty', and less likely to express 'depressed mood' and 'thoughts of death'. In addition, some field research and anthropological studies found a greater tendency for Chinese individuals with depression to complain of somatic symptoms compared to their Western counterparts.¹¹

Few studies have attempted to determine whether depressive illness, and in particular MDD, shares similar clinical features across a range of Asian countries. To our knowledge, only a single quantitative study has been carried out, comparing Chinese, Japanese, and Korean psychiatric outpatients.¹² The severity of many depressive symptoms (as measured by the 17-item Hamilton Rating Scale for Depression [HRSD₁₇]) was found to be different among these Asian ethnic groups.

The above-mentioned findings suggest that depressive syndrome or its core symptoms may be similar across ethnic groups, while modest differences can be found on some symptoms. In addition, such information is important for both epidemiological and clinical

research. For example, if the preponderance of an HRSD₁₇ total score was accounted for by somatic features in one ethnic group but by mood or cognitive features in another, adjustments in outcome measurement might be necessary. In addition, clinicians would need to attend to any differing presentations to ensure that depressive diagnoses are not missed.

Given the above concerns, this study addressed the following question: Do antidepressant-medication-free outpatients with depression in China, Korea, Malaysia/Singapore, Taiwan, and Thailand differ with regard to clinical and symptom features?

METHODS

Study design and settings

This cross-sectional study examined outpatients with depression who were attending psychiatric practices in six countries across Asia: China (Beijing and Shanghai), Korea (Daegu and Seoul), Malaysia (Kuala Lumpur)/Singapore, Taiwan (Taoyan and Taipei), and Thailand (Chiang Mai and Songkhla). It was designed to provide a preliminary look at the sociodemographic and clinical features of individuals who seek help for MDD that has been clinically diagnosed using a structured interview based on DSM-IV criteria. The study was carried out from October 2008 through March 2010 at 13 study sites. All sites provide tertiary psychiatric care for the public or private sector. The study was approved by the Institutional Review Board or Ethics Committee of each site.

Participants

Participants were prospectively enrolled from outpatients who were seeking psychiatric treatment at the respective study sites. Individuals who presented for an intake appointment were approached by a study coordinator to participate in the study. For those who chose to participate, study details were explained and each participant provided written informed consent prior to study participation.

Evaluable participants for this report had to be 18–65 years of age and meet DSM-IV criteria for MDD based on the Mini International Neuropsychiatric Interview (MINI).¹³ Exclusion criteria included unstable medical condition, mood disorder due to medical conditions and/or substance abuse, psychotic or bipolar disorder, clinically significant cognitive impairment, treatment with psychotropic medication

within the previous month, treatment with a benzodiazepine within the previous week, and treatment with long-acting antipsychotic medication within the previous 3 months. All other psychiatric and co-morbid conditions were permitted.

Assessment

Participants completed a case report form in the presence of the study coordinator. A face-to-face interview was then conducted with the site investigator before participants met with their treating clinician. Data collection was accomplished in a single visit. The case report form captured sociodemographic characteristics, including age, sex, ethnicity, education, marital status, work status, living situation, and religion. It also included the Symptom Checklist 90-Revised (SCL-90-R).¹⁴ The MINI was completed by trained psychiatrists. The clinical interview gathered information on age at onset of the first major depressive episode (MDE), duration of index episode, and number of past psychiatric hospitalizations. The Montgomery-Asberg Depression Rating Scale (MADRS)¹⁵ was completed during the interview. The licenses to use the English or validated translations (Chinese, Korean, Malay, and Thai) of the SCL-90-R and MADRS were secured from scale proprietors by Lundbeck Export A/S.

Statistical analysis

Five groups of participants were formed based on the participants' country of residence: China, Taiwan, Malaysia/Singapore, Korea, and Thailand. These groups were compared with respect to clinical and depressive symptom features. Potential confounding due to differential distributions among the groups in sociodemographic characteristics were first identified using χ^2 -tests. These sociodemographic characteristics were sex (male/female), age (18–34, 35–50, 51–65), ethnicity (Chinese, Korean, Thai, other Asians), marital status (never married, married/co-habiting, separated/divorced/widowed), work status (employed, student, homemaker, retired/unemployed), living situation (living with family versus not living with family), and religion (no religion/free thinker, Buddhism, Christianity, other religions).

ANOVA was performed to compare the groups with respect to the clinical features of age at onset of first MDE (in years), duration of index episode (in

months), and the total MADRS score, controlling for differences in the sociodemographic characteristics. Except for the variable duration of index episode, which was transformed in the natural logarithm scale (to reduce the right skew in the data), all clinical feature variables were analyzed in their natural units. For the number of past hospitalizations due to depression, the variable was first re-coded into 0, 1, and ≥ 2 , and a log-linear analysis was then carried out to assess its (partial) association with country of residence, controlling for confounding sociodemographic characteristics.

Clinical features that differed among the groups were controlled for, in addition to confounding sociodemographic characteristics, in the comparison of depression presentation. ANCOVA was performed on individual items of the MADRS, the 13-item SCL-90-R Depression and the 10-item SCL-90-R Anxiety Subscales. The SCL-90-R Anxiety Subscale was also examined because anxiety disorders and symptoms are strongly co-morbid with major depressive episodes.¹⁶ A model with only main effects was specified.

To address multiplicity in testing, Bonferroni's correction was done to retain an overall family-wise error rate of 5% in each of the MADRS, the SCL-90R-Depression Subscale and the SCL 90R Anxiety Subscale. After finding a significant group effect, a post-hoc pairwise comparison (Bonferroni method) was used to guide the interpretation of which groups significantly differed.

Effect sizes (ES) represented by the partial eta-squared statistic were calculated to complement tests of statistical significance. A threshold of 0.10 was taken as the minimum size representing clinical significance. The effect sizes of 0.25 and 0.64 were considered as being moderate, and strong, respectively.¹⁷

Statistical analyses were carried out using PASW18 (SPSS, Chicago, IL, USA). The percentage of missing data did not exceed 4% for any given outcome, so missing data were excluded from the analyses.

RESULTS

Participant enrollment

A total of 1917 outpatients were screened for eligibility, of whom 637 (33.2%) were eligible. The reasons for screen failure were as follows: use of psychotropic medication (370 patients, 28.9%), failure to meet the MINI criteria (308 patients, 24.1%), presence of

psychotic or bipolar disorder (226 patients, 17.7%), age above 65 years (127 patients, 9.9%), presence of mood disorders due to medical conditions or substance abuse (97 patients, 7.6%), age below 18 years (69 patients, 5.4%), refusal to provide informed consent (56 patients, 4.4%) or presence of an unstable or co-morbid medical condition (27 patients, 2.1%).

Of the 637 patients who were confirmed to be eligible, 556 were enrolled. The remaining patients were not enrolled for one of the following reasons: refusal/unwillingness to cooperate (58 patients), lack of patience to be interviewed (14 patients) or lack of time to participate in the study (nine patients). All participants were compensated for their time. The mean time taken for completion of the self-administered scales was 35.8 ± 14.1 min, and the mean time for completion of the face-to-face interview was 38.1 ± 13.8 min. Nine enrolled patients were further excluded because they had no current MDE, as confirmed by the MINI. After the exclusion, all 547 participants included in the analyses met the DSM-IV diagnosis of MDD with current MDE.

Sociodemographic features

For the entire cohort, the countries of origin were as follows: 114 participants were from China (20.8%), 101 from Korea (18.5%), 131 from Malaysia/Singapore (24.0%), 102 from Thailand (18.6%) and 99 from Taiwan (18.1%) (Table 1). Of all participants, 352 (64.4%) were female. The mean age was 39.6 ± 13.2 years. The ethnic distribution was Chinese: 53.0%; Korean: 18.5%; Thai: 18.6%; Malay: 4.9%; Indian: 4.4%; and other Asians: 0.5%. The majority had completed secondary education (75.5%). The majority were either married or co-habiting (58.2%) and lived with their families (79.9%). Close to half were employed (47.5%). The sample was split among non-believers (39.7%), Buddhists (34.9%), and other believers (25.4%) (Table 1).

The five country-based groups were comparable regarding sex ($P = 0.226$) and living situation ($P = 0.110$). They differed significantly regarding age, the percentage that completed secondary education, marital status, work status, and (as anticipated) in ethnicity and religion (all $P < 0.001$). Participants in China, Taiwan, and Malaysia/Singapore were mostly between 18 and 34 years of age, whereas participants in Korea and Thailand were mostly between 50 and 65 years of age ($\chi^2 = 34.199$, d.f. = 8, $P < 0.001$). The majority of participants completed secondary educa-

tion in all countries. The percentages in China (83.3%), Taiwan (83.8%), and Malaysia/Singapore (80.0%) were comparable. Likewise, the percentages in Korea (63.4%) and Thailand (65.0%) were comparable. The difference between these two groups of countries was significant ($\chi^2 = 22.641$, d.f. = 4, $P < 0.001$). Ethnically, participants in China, Taiwan, Korea, and Thailand were homogeneous; meaning no less than 99% reported the same ethnic group (e.g., Chinese, Korean, Thai). Participants in Malaysia/Singapore had three dominant groups: Chinese (59.2%), Malay (20.8%), and Indian (18.5%) ($\chi^2 = 1114.955$, d.f. = 12, $P < 0.001$). The highest percentages of employed individuals (i.e., full-time, part-time, self-employed) were from Malaysia/Singapore (63.3%), Thailand (56.3%), and Taiwan (53.7%). Home-makers constituted a plurality in Korea (43.6%). The highest percentage of unemployed/retired participants was reported in China (34.2%) ($\chi^2 = 83.574$, d.f. = 12, $P < 0.001$). The groups significantly differed regarding religion ($\chi^2 = 473.695$, d.f. = 12, $P < 0.001$), with China having the highest percentage of non-believers (94.7%), Thailand having the highest percentage of believers (100%), and Malaysia/Singapore being the most diverse (Table 1).

Clinical features

The MADRS scores ranged from 7 to 51, with a mean of 29.1 ± 8.14 . The mean age at first MDE onset was 36.4 ± 13.3 years (Table 1). The duration of index episode was highly skewed to the right with a median (range) of 5.0 (0.5–420.0) months. About 91.4% of participants ($n = 498$) reported no previous psychiatric hospitalization. After adjusting for differences in age, education, marital status, work status, and religion, significant differences between country groups were only found for duration of index episode ($F = 26.479$, d.f.1 = 4, d.f.2 = 528, $P < 0.001$) and MADRS depression severity ($F = 10.048$, d.f.1 = 4, d.f.2 = 528, $P < 0.001$). In terms of index episode duration, the longest median duration was reported by participants from China: 16.3 (0.5–240.0) months. In terms of depressive severity, the highest scores were reported by participants from Korea (31.2 ± 6.58).

In the comparison of psychiatric symptoms as measured by the MADRS, SCL-90 Depression Subscale, and SCL-90 Anxiety Subscales, the seven variables identified as potential confounders and were adjusted for accordingly: age, completion of

Table 1 Sociodemographic characteristics and clinical features of Asians with major depressive disorder

Attributes	Total (n = 547)	CN (n = 114)	KR (n = 101)	MY/SG (n = 131)	TH (n = 102)	TW (n = 99)	P-value
Sociodemographic†							
Sex (% female)	64.4	67.5	69.3	56.2	67.0	63.6	$\chi^2 = 5.659$, d.f. = 4, $P = 0.226$
Age (years)	39.6 (13.2)	37.6 (12.7)	44.8 (14.3)	36.7 (12.0)	41.5 (13.4)	38.5 (12.3)	$\chi^2 = 34.199$, d.f. = 8, $P < 0.001$
18–34	40.2	46.5	22.8	51.5	34.0	42.4	
35–49	30.2	27.2	32.7	28.5	27.2	36.4	
50–65	29.6	26.3	44.6	20.0	38.8	21.1	
Education (% completed secondary education)	75.5	83.3	63.4	80.0	65.0	83.8	$\chi^2 = 22.641$, d.f. = 4, $P < 0.001$
Ethnicity							$\chi^2 = 1114.955$, d.f. = 12, $P < 0.001$
Chinese	53.0	100.0	0.0	59.2	0.0	100.0	
Korean	18.5	0.0	100.0	0.0	0.0	0.0	
Thai	18.6	0.0	0.0	0.0	99.0	0.0	
Other Asians	9.9	0.0	0.0	40.8	1.0	0.0	
Marital status							$\chi^2 = 29.748$, d.f. = 8, $P < 0.001$
Never married	29.3	31.6	23.0	39.2	20.4	29.3	
Married/co-habiting	58.2	62.3	64.0	48.5	70.9	47.5	
Separated/divorced/widowed	12.5	6.1	13.0	12.3	8.7	23.2	
Work status							$\chi^2 = 83.574$, d.f. = 12, $P < 0.001$
Employed	47.5	39.5	21.8	62.8	56.9	53.7	
Homemaker	20.9	14.0	43.6	10.1	23.5	16.8	
Student	12.9	12.3	14.9	13.2	12.7	11.6	
Retired/unemployed	18.7	34.2	19.8	13.9	6.9	17.9	
Living situation (% living with family)	79.9	77.2	88.1	74.6	82.5	78.8	$\chi^2 = 7.544$, d.f. = 4, $P = 0.110$
Religion							$\chi^2 = 473.695$, d.f. = 12, $P < 0.001$
Non-believers	39.7	94.7	48.5	13.1	0.0	43.4	
Buddhists	34.9	3.5	14.9	30.0	89.3	41.4	
Christians	13.2	0.9	36.6	16.9	4.9	7.1	
Other religions	12.2	0.9	0.0	40.0	5.8	8.1	
Clinical							
Age at first onset (years), mean (SD)†	36.4 (13.3)	34.3 (12.1)	40.6 (14.9)	34.6 (12.3)	37.8 (13.7)	35.7 (12.8)	$F = 1.382$, d.f.1 = 4, d.f.2 = 527, $P = 0.239$
Duration of index episode (months), mean (range)‡	5.0 (0.5–420.0)	16.3 (0.5–240.0)	5.23 (0.5–240.0)	6.0 (0.5–420.0)	2.0 (0.5–72.0)	3.0 (0.5–48.0)	$F = 26.479$, d.f.1 = 4, d.f.2 = 528, $P < 0.001$
Number of past psychiatric hospitalizations (%)‡							$\chi^2 = 13.17$, d.f. = 8, $P = 0.106$
0	91.4	84.2	92.1	95.4	91.3	93.8	
1	5.9	11.4	6.9	3.8	3.9	3.1	
≥ 2	2.8	4.4	1.0	0.8	4.9	3.1	
MADRS total score, mean (SD) ^b	29.1 (8.14)	30.8 (9.40)	31.2 (6.58)	28.1 (7.72)	30.5 (6.46)	24.9 (8.53)	$F = 10.048$, d.f.1 = 4, d.f.2 = 528, $P < 0.001$

†Except for mean (SD) age, all sociodemographic data presented as %.

‡Adjusted for sociodemographic differences in age, education, marital status, work status and religion.

§Median (minimum–maximum). Analyzed on a natural logarithmic (ln) scale.

¶Partial association between country and number of hospitalization using log-linear analyses controlling for age, education, marital status, work status and religion.

CN, China; KR, Korea; MADRS, Montgomery–Asberg Depression Rating Scale; MY/SG, Malaysia/Singapore; TH, Thailand; TW, Taiwan.

secondary education, marital status, work status, religion, index episode duration, and depressive severity.

Symptom presentation

Montgomery–Asberg Depression Rating Scale

Table 2 summarizes the group comparisons for each MADRS item. Overall, the most common MADRS symptoms were ‘reported sadness’ (3.43 ± 1.20) and ‘reduced sleep’ (3.41 ± 1.61), while the least common was ‘suicidal thoughts’ (1.95 ± 1.56). The rest of the symptoms in the order of severity were: concentration difficulties (3.17 ± 1.30), inability to feel (3.17 ± 1.30), apparent sadness (3.16 ± 1.14),

inner tension (3.15 ± 1.20), pessimistic thoughts (2.71 ± 1.42), lassitude (2.69 ± 1.54), and reduced appetite (2.27 ± 1.67).

After controlling for seven potential confounders and applying the Bonferroni correction, statistically significant differences were found between the country groups for four MADRS symptoms: lassitude ($P < 0.001$, $ES = 0.131$), inner tension ($P < 0.001$, $ES = 0.080$), suicidal thoughts ($P < 0.001$, $ES = 0.041$) and reported sadness ($P = 0.004$, $ES = 0.029$). Among all symptoms and countries, while the most severe symptom was the reduced sleep in Thai participants (3.65 ± 0.74), the least severe symptom was also suicidal thoughts in Thai participants (1.36 ± 0.70).

Table 2. Group comparisons on MADRS items

Items	Unadjusted analyses, mean (SD)							Adjusted analyses, mean (SD) [†]							Effect size
	Total sample	CN	KR	MY/SG	TH	TW	<i>P</i> -value	Total sample	CN	KR	MY/SG	TH	TW	<i>P</i> -value	
Apparent sadness	3.16 (1.14)	3.46 (1.21)	3.33 (1.08)	2.95 (1.16)	3.39 (0.80)	2.65 (1.21)	<0.001	3.21 (0.69)	3.40 (0.74)	3.16 (0.52)	3.13 (0.62)	3.32 (0.54)	3.04 (0.69)	0.080	0.016
Reported sadness	3.43 (1.20)	3.89 (1.25)	3.80 (1.02)	3.02 (1.17)	3.60 (0.86)	2.90 (1.32)	<0.001	3.42 (0.87)	3.61 (0.93)	3.55 (0.65)	3.16 (0.76)	3.50 (0.65)	3.27 (0.83)	0.004	0.029
Inner tension	3.15 (1.20)	2.83 (1.38)	3.08 (1.04)	3.10 (1.09)	3.34 (0.79)	3.47 (1.51)	0.001	3.21 (0.67)	2.75 (0.74)	2.96 (0.55)	3.26 (0.62)	3.25 (0.54)	3.81 (0.68)	<0.001	0.080
Reduced sleep	3.41 (1.61)	3.48 (1.63)	3.22 (1.43)	3.34 (1.26)	3.92 (1.62)	3.08 (2.01)	0.002	3.35 (0.90)	3.29 (1.01)	2.97 (0.76)	3.35 (0.87)	3.65 (0.74)	3.51 (0.86)	0.055	0.018
Reduced appetite	2.27 (1.67)	2.42 (1.67)	2.31 (1.34)	2.27 (1.59)	2.59 (1.77)	1.67 (1.85)	0.002	2.22 (1.03)	2.36 (1.16)	2.17 (0.87)	2.30 (1.02)	2.16 (0.80)	2.11 (1.07)	0.767	0.003
Concentration difficulties	3.17 (1.30)	3.25 (1.67)	2.99 (1.22)	3.23 (1.11)	3.34 (0.94)	2.98 (1.41)	0.161	3.19 (0.78)	3.10 (0.93)	2.82 (0.68)	3.32 (0.78)	3.27 (0.63)	3.44 (0.81)	0.008	0.026
Lassitude	2.69 (1.54)	2.97 (1.61)	3.22 (1.14)	3.02 (1.42)	2.76 (1.29)	1.24 (1.36)	<0.001	2.68 (1.04)	2.91 (0.95)	3.21 (0.65)	3.02 (0.81)	2.76 (0.66)	1.74 (0.85)	<0.001	0.131
Inability to feel	3.17 (1.31)	3.31 (1.59)	3.52 (1.08)	2.91 (1.20)	3.45 (1.04)	2.67 (1.34)	<0.001	3.16 (0.90)	3.07 (1.02)	3.31 (0.70)	2.96 (0.87)	3.30 (0.71)	3.14 (0.88)	0.100	0.015
Pessimistic thoughts	2.71 (1.42)	3.01 (1.53)	3.02 (1.18)	2.51 (1.31)	2.53 (1.39)	2.49 (1.55)	0.002	2.74 (0.91)	2.62 (1.05)	2.76 (0.74)	2.61 (0.87)	2.67 (0.72)	3.03 (0.95)	0.067	0.017
Suicidal thoughts	1.95 (1.56)	2.20 (1.72)	2.67 (1.39)	1.78 (1.44)	1.54 (1.36)	1.51 (1.63)	<0.001	1.95 (0.94)	2.01 (1.01)	2.40 (0.72)	1.94 (0.82)	1.36 (0.70)	2.02 (0.92)	<0.001	0.041

Bold font indicates statistical significance.
[†]Adjusted for age, completion of secondary education, marital status, work status, religion, index episode duration and depressive severity. Adjusted total and country group means were estimated with covariates evaluated at the following values: age = 39.6, duration of index episode = 3.2, MADRS score = 29.1.
 CN, China; KR, Korea; MADRS, Montgomery–Asberg Depression Rating Scale; MY/SG, Malaysia/Singapore; TH, Thailand; TW, Taiwan.

SCL-90-R Depression Subscale

Table 3 summarizes the results with regard to the SCL-90-R depression items. The unadjusted mean subscale score was 2.04 ± 0.85 (range: 0.1–3.9). After controlling for potential confounders, the most highly endorsed item for the whole sample was 'feeling blue' (2.61 ± 0.60) and the least-endorsed item was 'feeling of being trapped' (0.97 ± 0.59). After the Bonferroni correction, statistically significant differences were found in all but four items: self-blaming ($P = 0.062$), loss of sexual interest ($P = 0.034$), thoughts of ending life ($P = 0.009$) and feeling hopeless ($P = 0.005$). Among all symptoms and countries, while the most severe symptom was the feeling blue in Taiwanese (2.82 ± 0.66), the least severe symptom was the feeling of being trapped in Chinese (0.33 ± 0.42).

SCL-90-R Anxiety Subscale

Table 4 summarizes the results on the SCL-90-R anxiety items. The unadjusted mean subscale score

was 2.05 ± 0.85 (range: 0.0–4.0). Compared to the SCL-90-R depression items, the anxiety items were far less prominent. The most-endorsed item of the entire cohort was 'feeling tense' (2.37 ± 0.61), and the least-endorsed item was 'thoughts and images of a frightening nature' (1.02 ± 0.48). After the Bonferroni correction, statistically significant differences were found in all items except 'feeling restless' ($P = 0.253$) and 'suddenly scared' ($P = 0.057$).

Among all symptoms and countries, while the most severe symptom was nervousness in Koreans (2.67 ± 0.31), the least severe symptom was trembling in Chinese (0.53 ± 0.34).

DISCUSSION

This study of Asian outpatients with MDD revealed that a large number of depressive and anxious symptoms significantly differ across the five country groups studied. Of the 10 MADRS symptoms/signs, significant differences were found between the groups for 'inner tension', 'reported sadness', 'lassitude' and 'suicidal thoughts', even after controlling

Table 3. Group comparisons on SCL-90R Depression Subscale items

Items	Unadjusted analyses, mean (SD)							Adjusted analyses, mean (SD) [†]							Effect size
	Total sample	CN	KR	MY/SG	TH	TW	P-value	Total sample	CN	KR	MY/SG	TH	TW	P-value	
Loss of sexual interest	1.65 (1.40)	1.44 (1.27)	1.86 (1.42)	1.53 (1.48)	1.90 (1.40)	1.59 (1.38)	0.064	1.46 (0.52)	1.05 (0.55)	1.70 (0.47)	1.37 (0.48)	1.58 (0.45)	1.58 (0.49)	0.034	0.020
Feeling low in energy	2.48 (1.25)	2.54 (1.23)	2.77 (1.20)	2.69 (1.16)	2.31 (1.37)	2.08 (1.18)	<0.001	2.37 (0.59)	2.20 (0.63)	2.57 (0.48)	2.71 (0.51)	2.17 (0.42)	2.20 (0.60)	0.002	0.033
Thoughts of ending life	1.38 (1.37)	1.26 (1.24)	1.90 (1.49)	1.33 (1.33)	1.36 (1.44)	1.15 (1.27)	0.002	1.40 (0.64)	1.02 (0.69)	1.72 (0.53)	1.50 (0.58)	1.33 (0.50)	1.44 (0.68)	0.009	0.026
Crying easily	1.87 (1.48)	1.35 (1.38)	1.88 (1.46)	2.20 (1.38)	1.89 (1.52)	2.03 (1.58)	<0.001	1.98 (0.66)	1.40 (0.61)	1.91 (0.60)	2.30 (0.55)	2.02 (0.52)	2.28 (0.67)	0.001	0.038
Feeling being trapped	1.02 (1.30)	0.49 (0.89)	1.38 (1.43)	1.56 (1.37)	1.01 (1.32)	0.64 (1.12)	<0.001	0.97 (0.59)	0.33 (0.42)	1.44 (0.41)	1.45 (0.41)	0.98 (0.36)	0.66 (0.44)	<0.001	0.094
Self blaming	1.95 (1.34)	1.83 (1.34)	2.11 (1.23)	1.96 (1.43)	2.24 (1.28)	1.65 (1.30)	0.019	1.89 (0.59)	1.57 (0.63)	1.98 (0.52)	1.86 (0.53)	2.23 (0.46)	1.79 (0.61)	0.062	0.018
Feeling lonely	2.41 (1.31)	1.94 (1.30)	2.69 (1.25)	2.65 (1.29)	2.62 (1.28)	2.17 (1.29)	<0.001	2.45 (0.68)	1.76 (0.62)	2.81 (0.59)	2.67 (0.56)	2.70 (0.53)	2.29 (0.69)	<0.001	0.068
Feeling blue	2.67 (1.18)	2.34 (1.23)	2.82 (1.07)	2.76 (1.28)	2.76 (1.13)	2.71 (1.10)	0.016	2.61 (0.60)	2.10 (0.65)	2.69 (0.50)	2.80 (0.55)	2.62 (0.48)	2.82 (0.66)	<0.001	0.045
Worrying too much	2.58 (1.23)	2.01 (1.26)	2.81 (1.13)	2.87 (1.17)	2.77 (1.23)	2.44 (1.16)	<0.001	2.44 (0.50)	1.82 (0.41)	2.73 (0.35)	2.71 (0.36)	2.52 (0.31)	2.45 (0.40)	<0.001	0.054
Feeling no interest	2.35 (1.26)	2.49 (1.26)	2.54 (1.17)	2.55 (1.27)	1.91 (1.31)	2.20 (1.15)	<0.001	2.19 (0.63)	2.16 (0.67)	2.41 (0.55)	2.49 (0.57)	1.61 (0.47)	2.29 (0.63)	<0.001	0.055
Feeling hopeless	2.11 (1.46)	2.07 (1.51)	2.24 (1.47)	2.25 (1.42)	1.99 (1.47)	1.98 (1.44)	0.476	2.01 (0.74)	1.56 (0.84)	2.04 (0.69)	2.30 (0.69)	1.93 (0.61)	2.20 (0.83)	0.005	0.029
Everything is effort	1.88 (1.39)	1.64 (1.36)	2.60 (1.24)	1.61 (1.44)	2.34 (1.21)	1.40 (1.30)	<0.001	1.83 (0.67)	1.34 (0.58)	2.40 (0.43)	1.61 (0.48)	2.28 (0.37)	1.53 (0.56)	<0.001	0.074
Feeling worthless	2.15 (1.41)	1.96 (1.37)	2.62 (1.19)	2.12 (1.40)	2.12 (1.47)	2.04 (1.53)	0.011	2.05 (0.74)	1.44 (0.81)	2.40 (0.68)	2.12 (0.65)	2.10 (0.60)	2.18 (0.80)	<0.001	0.048
SCL-Depression Subscale	2.04 (0.85)	1.80 (0.86)	2.33 (0.84)	2.16 (0.77)	2.10 (0.84)	1.85 (0.87)	<0.001	1.98 (0.55)	1.53 (0.60)	2.23 (0.47)	2.15 (0.49)	2.00 (0.43)	1.98 (0.59)	<0.001	0.087

Bold font indicates statistical significance.
[†]Adjusted for age, completion of secondary education, marital status, work status, religion, index episode duration and depressive severity.
Adjusted total and country group means were estimated with covariates evaluated at the following values: age = 39.3, duration of index episode = 3.2, MADRS score = 29.1.
CN, China; KR, Korea; MADRS, Montgomery-Asberg Depression Rating Scale; MY/SG, Malaysia/Singapore; SCL-90R, Symptom Checklist 90-Revised; TH, Thailand; TW, Taiwan.

for age, completion of secondary education, marital status, work status, religion, index episode duration, and depressive severity. Similarly, the SCL-90-R depression scale revealed a range of differentiating symptoms. They included feeling lonely, blue, trapped, worthless, low in energy, and that everything is an effort; and lacking interest, crying easily and worrying too much. The MADRS lassitude item had the largest effect size (0.131), which was much smaller than the pre-defined medium one (0.25). The other items of the MADRS and 13-item SCL-90-R Depression Subscale had effect sizes lower than the threshold of minimum clinical significance (<0.10). Similar results were found with the 10-item SCL-90-R Anxiety Subscale.

Specifically, our comparison of depressive symptoms between the groups found that: (i) mainland Chinese outpatients are the least likely to self-report depression; (ii) Taiwanese outpatients are the most likely to report 'inner tension' and the least likely to report 'lassitude'; (iii) outpatients in Thailand are the least likely to express suicidal thoughts; and (iv) outpatients in Malaysia/Singapore are less likely to report sadness compared to outpatients in mainland China, Korea or Thailand.

With regard to depressive symptoms within each group, we found that: (i) mainland Chinese outpatients most often report 'feeling low in energy' or 'feeling no interest'; (ii) Taiwanese outpatients most often report 'feeling blue' and 'worrying too much';

Table 4. Group comparisons on SCL-90R Anxiety Subscale items

Items	Unadjusted analyses, mean (SD)							Adjusted analyses, mean (SD) [†]							Effect size
	Total sample	CN	KR	MY/SG	TH	TW	P-value	Total sample	CN	KR	MY/SG	TH	TW	P-value	
02 Nervousness	2.25 (1.24)	2.14 (1.30)	2.72 (1.13)	2.02 (1.29)	1.99 (1.21)	2.47 (1.11)	<0.001	2.23 (0.42)	2.12 (0.37)	2.67 (0.31)	2.04 (0.33)	1.79 (0.25)	2.53 (0.36)	<0.001	0.052
17 Trembling	1.02 (1.18)	0.38 (0.66)	1.67 (1.16)	1.13 (1.25)	0.99 (1.18)	1.00 (1.18)	<0.001	1.12 (0.51)	0.53 (0.34)	1.67 (0.28)	1.15 (0.31)	0.99 (0.24)	1.25 (0.34)	<0.001	0.085
23 Suddenly scared	1.29 (1.30)	0.96 (1.16)	1.32 (1.24)	1.56 (1.38)	1.58 (1.46)	0.96 (1.10)	<0.001	1.42 (0.49)	1.16 (0.40)	1.46 (0.36)	1.57 (0.43)	1.70 (0.33)	1.18 (0.47)	0.057	0.018
33 Feeling fearful	1.84 (1.36)	1.26 (1.23)	2.16 (1.38)	2.06 (1.36)	1.80 (1.40)	1.93 (1.28)	<0.001	1.81 (0.65)	1.10 (0.64)	2.11 (0.53)	2.06 (0.52)	1.71 (0.46)	2.06 (0.65)	<0.001	0.070
39 Heart pounding	1.52 (1.30)	0.99 (1.12)	1.76 (1.34)	1.50 (1.30)	1.78 (1.31)	1.63 (1.31)	<0.001	1.58 (0.46)	1.05 (0.37)	1.86 (0.32)	1.47 (0.43)	1.67 (0.29)	1.83 (0.36)	<0.001	0.040
57 Feeling tense	2.28 (1.31)	1.81 (1.29)	2.44 (1.24)	2.09 (1.25)	3.06 (1.02)	2.08 (1.38)	<0.001	2.37 (0.61)	1.82 (0.48)	2.48 (0.35)	2.07 (0.46)	3.14 (0.34)	2.33 (0.49)	<0.001	0.077
72 Spells of terror	1.49 (1.33)	0.87 (1.13)	1.60 (1.46)	1.59 (1.35)	1.93 (1.18)	1.47 (1.28)	<0.001	1.51 (0.61)	0.92 (0.57)	1.63 (0.45)	1.54 (0.53)	1.77 (0.40)	1.71 (0.53)	0.001	0.037
78 Feeling restless	1.74 (1.27)	1.90 (1.31)	1.61 (1.26)	2.00 (1.26)	1.56 (1.24)	1.52 (1.22)	0.011	1.72 (0.51)	1.80 (0.49)	1.72 (0.44)	1.90 (0.53)	1.46 (0.40)	1.74 (0.46)	0.253	0.010
80 Feeling something bad is to happen	1.49 (1.36)	0.94 (1.19)	1.23 (1.19)	1.69 (1.34)	2.01 (1.40)	1.58 (1.44)	<0.001	1.34 (0.59)	0.63 (0.52)	1.16 (0.45)	1.52 (0.43)	1.80 (0.38)	1.58 (0.52)	<0.001	0.052
86 Thoughts and images of a frightening nature	1.13 (1.28)	1.11 (1.15)	1.65 (1.29)	0.76 (1.14)	1.19 (1.30)	1.07 (1.39)	<0.001	1.02 (0.48)	0.82 (0.45)	1.48 (0.38)	0.69 (0.35)	1.07 (0.33)	1.06 (0.43)	0.001	0.037
SCL-Anxiety Subscale	2.05 (0.85)	1.80 (0.86)	2.33 (0.84)	2.16 (0.77)	2.10 (0.84)	1.85 (0.87)	<0.001	1.61 (0.45)	1.22 (0.44)	1.86 (0.33)	1.64 (0.40)	1.72 (0.31)	1.75 (0.44)	<0.001	0.057

Bold font indicates statistical significance.

[†]Adjusted for age, completion of secondary education, marital status, work status, religion, index episode duration and depressive severity.

Adjusted total and country group means were estimated with covariates evaluated at the following values: age = 39.5, duration of index episode = 3.2, MADRS score = 29.1.

CN, China; KR, Korea; MADRS, Montgomery-Asberg Depression Rating Scale; MY/SG, Malaysia/Singapore; SCL-90R, Symptom Checklist 90-Revised; TH, Thailand; TW, Taiwan.

(iii) Malaysian/Singaporean outpatients most often report 'feeling blue', 'worrying too much', and 'feeling low in energy'; (iv) Korean outpatients are likely to endorse all symptoms, but most often report 'feeling lonely', 'worrying too much', 'feeling blue', and 'feeling low in energy'; and (v) outpatients in Thailand most often report 'feeling lonely', 'feeling blue', and 'worrying too much'.

Our data on anxiety symptom reporting within groups suggest that: (i) outpatients in Thailand most often report 'feeling tense'; (ii) Taiwanese and Korean outpatients are similar in their patterns of most prominently reporting 'nervousness' and 'feeling tense', and (less prominently) 'feeling fearful'; (iii) Malaysian/Singaporean outpatients most often report this same trio of items, but less prominently and in a different order; and (iv) mainland Chinese outpatients most often report 'nervousness', followed by 'feeling tense' and 'feeling restless'.

The results of this study are relatively similar to those of the study presented by Nakane *et al.*¹² Although the differences in particular symptoms among groups might not be the same, both studies found differences in depressive severity on many symptoms. Using the HRSD₁₇, Nakane *et al.* found that Korean patients with MDD were more likely to express depressed mood, guilt, agitation, psychic anxiety, and somatic complaints than were Chinese and Japanese patients. Chinese patients had more severe suicidality than did their Japanese counterparts. In addition, Japanese patients had more severity with regard to work and activities, psychomotor retardation, and somatic complaints than did the Chinese patients. However, the additional calculation of the effect sizes in the present study may have considerable impact upon the interpretation of our study's findings. Although both studies found that the severity of many psychiatric symptoms in Asian patients who have

MDD were different among country groups, these findings might be caused by the large sample sizes. Taking into account the effect sizes of differences, all of the symptom differences in the present study are very small.

As an exploratory study, we did not estimate the sample size needed. However, by setting the power of 0.80 and the alpha level of 0.05, the power analysis of the obtained MADRS scores suggested that a sample size of 27 per country (or group) should be satisfactory. However, the present results need to be confirmed through further studies. These findings do, however, suggest that the psychiatric symptoms in Asian patients with depression who come from various ethnic backgrounds are different, though the differences are not large enough to require criteria or scale adjustment. Several measures, in particular the MADRS and the SCL-90-R, appear to be cross-reliable among Asians with various ethnic backgrounds.

The present study had several limitations. First, caution should be applied in generalizing the findings of this study. The participants were all from psychiatric practice sites (public, private) located in urban areas, so it is unknown to what degree the results apply to community samples. The exclusion of patients currently being treated with psychotropic medications allowed us to have a clear picture of the psychiatric symptoms in our participants, but this requirement may have inadvertently led to the exclusion of many patients commonly seen in typical clinic settings. This study did not employ random sampling procedures, and it primarily enrolled patients from tertiary care settings. In addition, only 33.2% of the screened patients were included in the study. Second, much of the similarity across the countries may be due to the restricted inclusion criteria, which imposed a certain level of subject uniformity. Third, the MINI is developed for use in clinical practice. Therefore, it may not be sensitive to detect mild MDE. Fourth, the sampling bias was clearly observed in the present sample (e.g., age). Although we had adjusted several variables, some unnoticed characteristics might be overlooked. Fifth, despite the rigorous methodology set in place for the translation of scales, nuances may have been lost in translation. Finally, while the MINI and the MADRS were used, there was no interrater reliability established for either measure.

In conclusion, the present study found discernible differences in a range of depressive and anxiety symptoms across psychiatric outpatients drawn from five Asian countries. These profiles indicate that MDD

patients from the different countries differ with regard to the likelihood of them suffering from many depressive and anxiety symptoms. However, these differences are modest, which suggests that common psychiatric measures can be used in clinical studies that enroll Asian outpatients who have depression and are from different countries.

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