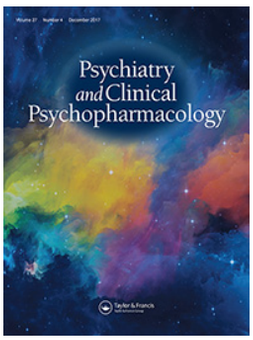

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Prevalence and clinical characteristics of major depressive disorder (MDD) without depressed mood in Koreans with MDD: results from the CRESCEND study

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ABSTRACT

Objective: We examined the prevalence and clinical characteristics of patients with major depressive disorder (MDD) without depressed mood, using data from the Clinical Research Center for Depression (CRESCEND) study in South Korea.

Methods: Using analysis of covariance for continuous variables and binary logistic regression analysis for discrete variables, the clinical characteristics of MDD patients with and without depressed mood were compared after controlling for the potential effects of gender. To represent the extent of group differences, we computed Cohen's *d* statistics.

Results: Of 1009 MDD patients, only 2.2% were without depressed mood. Compared with those with depressed mood, these patients were characterized by a significantly lower rate of current suicidal ideation (adjust odds ratio = 5.258, $p = .003$; $d = 0.193$), fewer depressive symptom profiles ($F = 8.731$, $p = .003$; $d = -0.543$) and lower severity scores for overall depression ($F = 16.027$, $p < .0001$; $d = -0.853$), core depressive symptoms ($F = 14.233$, $p < .0001$; $d = -0.810$), insomnia ($F = 6.967$, $p = .008$; $d = -0.579$), anxiety ($F = 14.235$, $p < .0001$; $d = -0.810$), and suicidal ideation ($F = 9.034$, $p = .003$; $d = 0.531$), as well as a higher level of social functioning ($F = 6.862$, $p = .009$; $d = 0.531$).

Conclusions: MDD without depressed mood is associated with a lower illness burden than MDD with depressed mood, and may have the distinctive clinical characteristics of MDD.

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Anxiety; depressed mood; major depressive disorder; suicidal ideation; illness burden

Introduction

Depressed mood and loss of interest or pleasure have been defined as core symptoms of major depressive disorder (MDD) in the Diagnostic and Statistical Manual of Mental Disorder, 4th edition (DSM-IV) and 5th edition (DSM-5) [1]. In addition, a strong association has been reported between depressed mood and MDD, and evidence has been presented that low socioeconomic status and social isolation contribute to depressed mood [2]. Also, an association between depressed mood and sleep disturbance has been reported based on a cohort of 3880 patients in Germany [3]. Moreover, depressed mood has been proposed as an independent risk factor for 22-month mortality in physically ill patients [4].

To overcome the non-specificity and/or heterogeneity of MDD in DSM-IV and DSM-5, a symptom-based model of depression subtypes has been proposed. In this model, depressed mood is one of the defining symptoms of the distinct disorder of melancholia [5]. One study has indicated that depressed mood is not reported by a substantial proportion of currently depressed patients with co-morbid physical illness [6]. This raises the possibility that the absence of depressed mood might identify the distinctive clinical features of MDD. However, to our knowledge, the distinctive clinical features of MDD without depressed mood have rarely been reported. Hence, using the data from the Clinical Research Center for Depression (CRESCEND) study which is the largest clinical study of a nationwide sample of depressed patients in South Korea [7,8], we aimed to explore and present the prevalence and clinical characteristic of MDD patients without depressed mood in Koreans with MDD.

Methods

Study subjects

As reported previously [7,8], 1183 depressed patients, who were beginning psychiatric treatment, were

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recruited from 16 university-affiliated hospitals and 2 general hospitals in the CRESCEND study. The study protocols and informed consent forms were approved by all the institutional review boards of the survey centres. Before initiation of the study, written informed consent forms were completed by all study subjects. Under the supervision of clinical psychiatrists, certified clinical research coordinators collected demographic and clinical variables and determined assessment scales at regional centres. Formal consensus meetings to train the raters were held twice a year. Only MDD patients who were (i) aged 18–80 years and were (ii) diagnosed with the DSM-IV [9], were enrolled in our study, which was based on the data of the CRESCEND study. The diagnoses of the subjects were confirmed with the Structural Clinical Interview based on DSM-IV Axis I (SCID-I) [10]. Finally, 1009 MDD patients, 22 without depressed mood and 987 with depressed mood, were enrolled.

Depressed mood

Presence or absence of depressed mood and other depressive symptom profiles were determined with the DSM-IV [9] and confirmed with the SCID-I [10]. In addition, numbers of depressive symptom profiles were identified.

Assessment scales

Clinical characteristics including depressive symptoms, core depressive symptoms, insomnia symptoms, anxiety symptoms, overall psychiatric symptoms, suicidal ideation, global severity, social and occupational function, and quality of life were evaluated using the 17-item Hamilton Depression Rating Scale (HAM-D) [11], Maier-6 subscale [12], insomnia subscale [13], Hamilton Anxiety Rating Scale (HAM-A) [14], Brief Psychiatric Rating Scale (BPRS) [15], Scale for Suicidal Ideation (SSI-Beck) [16], Clinical Global Impression of Severity (CGI-S) [17], Social and Occupational Functional Assessment Scale (SOFAS) [18], and WHOQOL-BREF (WHO Quality of Life Assessment instrument-abbreviated version) [19], respectively. The HAM-D, HAM-A, BPRS, CGI-S, and SOFAS are non-self-rated and symptom-based rating scales, whereas the SSI-Beck and WHOQOL-BREF are self-rated scales. Higher scores on the HAM-D, HAM-A, BPRS, SSI-Beck, and CGI-S and lower scores on the SOFAS and WHOQOL-BREF indicated greater symptom severity and poorer social function/quality of life, respectively. All the assessment scales were formally translated into Korean and all the Korean versions were standardized [20–24].

Statistical analysis

The Kolmogorov–Smirnov test was used to examine the normality of the distributions of continuous variables. The demographic and clinical characteristics of MDD patients without and with depressed mood were compared using the independent t-test for continuous variables and the χ^2 test for discrete variables. To adjust for the potential effects of non-relevant variables, the analyses of covariance (ANCOVA) for continuous variables and binary logistic regression analyses for discrete variables were used. Significance was set at $p < .01$ (two-tailed) for all tests to reduce the familywise error rate caused by multiple comparisons. In addition, to assess the effect sizes of group differences, Cohen's d statistics (0.2 = small, 0.5 = medium, and 0.8 = large) were computed. All statistical analyses were performed using SPSS 21 for Windows (SPSS Inc., Chicago, IL, USA).

Results

As shown in Table 1, only 2.2% ($n = 22$) of MDD patients were without depressed mood. Those without depressed mood tended to include a lower proportion of females ($\chi^2 = 4.673$, $p = .031$) than those with depressed mood, although the differences were not significant. After controlling for the effects of gender, patients without depressed mood had a significantly lower rate of current suicidal ideation (adjusted odds ratio [aOR] = 5.258, $p = .003$; $d = 0.193$), fewer depressive symptom profiles ($F = 8.731$, $p = .003$; $d = -0.543$) and lower scores on the HAMD ($F = 16.027$, $p < .0001$; $d = -0.853$), Maier-6 subscale ($F = 14.233$, $p < .0001$; $d = -0.810$), insomnia subscale ($F = 6.967$, $p = .008$; $d = -0.579$), HAMA ($F = 14.235$, $p < .0001$; $d = -0.810$), SSI-Beck ($F = 9.034$, $p = .003$; $d = -0.663$) and CGI-S ($F = 7.979$, $p = .005$; $d = -0.601$), and a higher score on the SOFAS ($F = 6.862$, $p = .009$; $d = 0.531$). There were no significant differences in frequencies of history of depression (aOR = 2.173, $p = .137$; $d = 0.104$), co-morbid physical disease (aOR = 2.214, $p = .154$; $d = 0.090$), family history of depression (aOR = 0.691, $p = .511$; $d = 0.040$), history of suicidal attempts (aOR = 0.763, $p = .578$; $d = 0.037$) and outpatient enrolment (aOR = 1.812, $p = .343$; $d = 0.015$), or in scores on the BPRS ($F = 0.041$, $p = .840$; $d = -0.025$) and WHOQOL-BREF ($F = 2.254$, $p = .134$; $d = 0.316$).

Discussion

In summary, out of 1009 MDD patients, only 2.2% did not suffer from depressed mood. The latter had a lower rate of current suicidal ideation, fewer depressive symptom profiles, less severe depressive symptoms (in terms of core and insomnia symptoms), anxiety symptoms and suicidal ideation, and higher social functioning than those with depressed mood.

To our knowledge, the prevalence of MDD without depressed mood has been little reported. Since depressed mood is a core symptom of MDD, it has

Table 1. Comparison of the demographic and clinical characteristics of MDD patients without and with depressed mood.

		Depressed mood				
	Total sample ($n = 1009$)	Absent ($n = 22$)	Present ($n = 987$)	Statistical coefficient	Unadjusted p-value	Adjusted p-value[b]
Age, mean (SD) years	47.8 (15.8)	47.2 (14.6)	48.4 (15.8)	$t = 0.181$	.857	.983
Female, n (%)	751 (74.4)	12 (54.5)	739 (74.9)	$\chi^2 = 4.673$	.031	–
Married, n (%)	676 (66.8)	14 (63.6)	663 (66.9)	$\chi^2 = 0.101$	.750	.885
Education, mean (SD) years	10.5 (4.5)	9.8 (4.3)	10.5 (4.5)	$t = 0.747$	.455	.243
Employed, n (%)	701 (75.7)	17 (85.0)	684 (75.5)	$\chi^2 = 0.961$	.327	.176
Monthly income < 2000 USD, n (%)	474 (46.8)	8 (36.4)	466 (47.1)	$\chi^2 = 0.991$	.320	.248
Religious affiliation, n (%)	627 (62.0)	12 (54.5)	615 (62.1)	$\chi^2 = 0.524$	.469	.633
History of depression, n (%)	432 (43.1)	5 (25.0)	427 (43.5)	$\chi^2 = 2.730$	.098	.137
Co-morbid physical disease, n (%)	327 (32.3)	4 (18.2)	323 (32.6)	$\chi^2 = 2.053$	.152	.154
Family history of depression, n (%)	138 (13.6)	4 (18.2)	134 (13.5)	$\chi^2 = 0.395$	.530	.511
History of suicidal attempt, n (%)	224 (22.1)	6 (27.3)	218 (22.0)	$\chi^2 = 0.345$	.557	.578
Outpatient enrolment, n (%)	792 (78.3)	19 (86.4)	773 (78.1)	$\chi^2 = 0.868$	.352	.343
Suicidal ideation, n (%)	514 (51.9)	4 (19.0)	510 (52.6)	$\chi^2 = 9.287$	.002	.003
Number of depressive symptoms,[a] mean (SD)	6.2 (1.3)	5.5 (0.7)	6.2 (1.3)	$t = 2.922$	.004	.003
HAMD, mean (SD)	20.0 (6.0)	15.0 (5.3)	20.1 (6.0)	$t = 3.982$	<.0001	<.0001
Maier-6,[c] mean (SD)	9.1 (3.1)	6.6 (2.5)	9.1 (3.1)	$t = 3.758$	<.0001	<.0001
Insomnia subscale,[d] mean (SD)	3.5 (1.9)	2.4 (2.0)	3.5 (1.9)	$t = 2.609$	.009	.008
HAMA, mean (SD)	19.2 (8.7)	12.3 (5.6)	19.3 (8.7)	$t = 3.770$	<.0001	<.0001
BPRS, mean (SD)[e]	21.6 (8.0)	21.4 (5.9)	21.6 (8.1)	$t = 0.101$	.920	.840
SSI-Beck, mean (SD)	11.0 (8.8)	5.4 (6.0)	11.2 (8.8)	$t = 4.257$	<.0001	.003
CGI-S, mean (SD)	4.7 (1.0)	4.1 (1.0)	4.7 (1.0)	$t = 0.450$	.004	.005
SOFAS, mean (SD)	57.3 (11.1)	63.0 (12.2)	57.1 (11.1)	$t = -2.457$	.014	.009
WHOQOL-BREF, mean (SD)	63.7 (10.5)	66.9 (8.8)	63.6 (10.5)	$t = -1.447$	.148	.134

[a]Defined by MDD diagnostic criteria of the DSM-IV.
[b]Adjusted for the effects of gender.
[c]Defined by Maier and Philipp [12]; adding the scores on the mood, guilt, work and interest, psychic anxiety, agitation and retardation items.
[d]Defined by Manber et al. [13]; adding the scores on initial insomnia, middle insomnia. and terminal insomnia items.
[e]$n = 305$.

been regarded as a sensitive symptom for identifying drug-placebo responses and optimal antidepressant doses in clinical trials [25]. We have presented evidence above that MDD without depressed mood is associated with a lower illness burden than MDD with depressed mood, and may have the distinctive clinical characteristics of MDD. Our findings also indicate that MDD without depressed mood is rare in MDD patients and may be somewhat differentiated form MDD with depressed mood. It is however possible that depressed mood in these patients is masked by being replaced by other presentations. Moreover, Asians have a tendency to present somatic complaints, suicidal ideation and anxiety symptoms rather than depressed mood [26], and this tendency may have contributed to the measured prevalence of MDD without depressed mood. In addition, we cannot exclude the possibility that patients with subthreshold depression have been incorrectly regarded as without depressed mood, since co-morbidity with somatic illnesses and physical disability has been one of the characteristics of substhreshold depression [27].

In our study, the MDD patients without depressed mood tended to contain a lower proportion of females. Consistent with our findings, Eisenberger et al. [28] observed gender differences in the neural correlates that mediate the relationship between IL-6 and depressed mood. A positive association between increased IL-6 and increased depressive mood has been found in both males and females. Furthermore, we found that patients without depressed mood had lower severity of depression (especially of core symptoms), insomnia, anxiety, and suicidal ideation and a higher level of social functioning than those with depressed mood. Partly consistent with our findings, a strong association between depressed mood and sleep disturbance was seen in the general population of Germany [3]. Hence, our findings lead us to speculate that absence of depressed mood in MDD is associated with a lower illness burden. McLaren et al. [29] have shown significant associations between greater severity of depressed mood and larger volume of the left posterior cingulate/smaller volume of the isthmus cingulate, and between greater severity of somatic symptoms and smaller volume of the posterior cingulate. Hence, the neural correlates of MDD without depressed mood may include differential volume changes of the cingulate subregions.

There are certain limitations for our study. First, the small number of MDD patients without depressed mood could have influenced statistical significance. We cannot exclude a possibility that significantly different numbers of the MDD patients with and without depressive mood may contribute to the study results. Second, inter-rater reliability was not assessed. Despite these limitations, our study has the virtue of pioneering investigation of the prevalence and clinical characteristics of MDD patients without depressed mood.

In conclusion, MDD without depressed mood is less severe (especially in terms of core and insomnia symptoms), anxiety and suicidal ideation than MDD, and may have the distinctive clinical characteristics of MDD. Replication studies with larger samples and

further investigation of its neural correlates are warranted.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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References

[1] Uher R, Payne JL, Pavlova B, et al. Major depressive disorder in DSM-5: implications for clinical practice and research of change from DSM-IV. Depress Anxiety. 2014;31:459–471.
[2] Golding JM, Lipton RI. Depressed mood and major depressive disorder in two ethnic groups. J Psychiatr Res. 1990;24:65–82.
[3] Lacruz ME, Schmidt-Porkzywniak A, Dragano N, et al. Depressive symptoms, life satisfaction and prevalence of sleep disturbances in the general population of Germany: results from the Heinz Nixdorf recall study. BMJ Open. 2016;6:e007919.
[4] Hermann C, Brand-Driehorst S, Kaminsky B, et al. Diagnostic groups and depressed mood as predictors of 22-month mortality in medical inpatients. Psychosom Med. 1998;60:570–577.
[5] Harald B, Gordon P. Meta-review of depressive subtyping models. J Affect Disord. 2012;139:126–140.
[6] Silbitz I, Berger P, Freidl M, et al. ICD-10 or DSM-IV? Anhedonia, fatigue and depressed mood as screening symptoms for diagnosing a current depressive episode in physically ill patients in general hospital. J Affect Disord. 2010;126:245–251.
[7] Park SC, Choi J, Kim JM, et al. Is the psychotic depression assessment scale a useful diagnostic tool?: the CRESCEND study. J Affect Disord. 2014;166:79–85.
[8] Park SC, Østergaard SD, Choi J, et al. Is the BPRS-5 subscale of the psychotic depression assessment scale a reliable screening tool for psychotic depression?: results from the CRESCEND study. J Affect Disord. 2015;175:188–191.
[9] American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington (DC): American Psychiatric Association; 1994.
[10] First MB, Spitzer RL, Gibbon M, et al. Structured clinical interview for DSM-IV axis I disorders – patient edition. New York: Biometrics Research Department, New York State Psychiatric Institute; 1995.
[11] Hamilton MA. A rating scale for depression. J Neurol Neurosurg Psychiatry. 1960;23:56–62.
[12] Maier W, Philipp M. Improving the assessment of severity of depressive states: a reduction of the Hamilton depression scale. Pharmacopsychiatry. 1985;18:114–115.
[13] Manber R, Blasey C, Arnow B, et al. Assessing insomnia severity in depression: comparison of depression rating scales and sleep diaries. J Psychiatr Res. 2005;39:481–488.
[14] Hamilton MA. The assessment of anxiety state by rating. Br J Med Psychol. 1959;32:50–55.
[15] Overall JE, Gorham DR. The brief psychiatric rating scale. Psychol Rep. 1962;10:779–812.
[16] Beck AT, Kovacs M, Weissman A. Assessment of suicidal intention: the scale for suicide ideation. J Consult Clin Psychol. 1979;47:343–352.
[17] Guy W. ECDEU assessment manual for psychopharmacology. Washington (DC): National Institute of Mental Health US Department of Health, Education, and Welfare; 1976.
[18] Goldman HH, Skodol AE, Lave TR. Revising axis V for DSM-IV: a review of measures of social functioning. Am J Psychiatry. 1992;149:1148–1156.
[19] The WHOQOL Group. Development of the World Health Organization. WHOQOL-BREF quality of life assessment. Psychol Med. 1998;28:551–558.
[20] Yi JS, Bae SO, Ahn YM, et al. Validity and reliability of the Korean version of the Hamilton Depression Rating Scale (K-HDRS). J Korean Neuropsychiatr Assoc. 2005;44:456–465. Korean.
[21] Lee HS, Kuwn JH. Validation for the Beck scale for suicide ideation with Korean university students. Kor J Clin Psychol. 2009;28:1155–1172. Korean.
[22] Lee JY, Cho MJ, Kwon JS. Global assessment of functioning scale and social and occupational functioning scale. Korean J Psychopharmacol. 2006;17:122–127. Korean.
[23] Yi JS, Ahn YM, Shin HK, et al. Reliability and validity of the Korean version of the positive and negative syndrome scale. J Korean Neuropsychiatr Assoc. 2001;40:1090–1105. Korean.
[24] Min SK, Lee CI, Kim KI, et al. Development of Korean version of WHO Quality of Life Scale Abbreviated Version (WHOQOL-BREF). J Korean Neuropsychiatr Assoc. 2000;39:571–579. Korean.
[25] Kennedy SH. Core symptoms of major depressive disorder: relevance to diagnosis and treatment. Dialogues Clin Neurosci. 2008;10:271–277.
[26] Jeon HJ, Walker RS, Inamori A, et al. Differences in depressive symptoms between Korean and American outpatients with major depressive disorder. Int Clin Psychopharmacol. 2014;29:150–156.
[27] Geiselmann B, Linden M, Helmchen H. Psychiatrists' diagnoses of subthreshold depression in old age: frequency and correlates. Psychol Med. 2001;31:51–63.
[28] Eisenberger NI, Inagaki TK, Rameson LT, et al. An fMRI study of cytokine-induced depressed mood and social pain: the role of sex differences. Neuroimage. 2009;47:881–890.
[29] McLaren ME, Szymkowicz SM, O'Shea A, et al. Dimensions of depressive symptoms and cingulate volumes in older adults. Transl Psychiatry. 2016;6:e788.