

Is Early-onset in Major Depression a Predictor of Specific Clinical Features with More Impaired Social Function?

Yan-Hong Liu¹, Lin Chen¹, Yun-Ai Su², Yi-Ru Fang³, Manit Srisurapanont⁴, Jin Pyo Hong⁵, Ahmad Hatim⁶, Hong Choon Chua⁷, Dianne Bautista⁸, Tian-Mei Si²

¹Beijing Huilongguan Hospital, Peking University Teaching Hospital, Beijing 100096, China

²Key Laboratory of Mental Health, Ministry of Mental Health and Peking University Institute of Mental Health, Beijing 100191, China

³Division of Mood Disorders, Shanghai Mental Health Center, Shanghai Jiao Tong University School of Medicine, Shanghai 200025, China

⁴Department of Psychiatry, Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

⁵Department of Psychiatry, Faculty of Medicine, Asan Medical Center, Seoul, Korea

⁶Department of Psychological Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur, Malaysia

⁷Institute of Mental Health, Woodbridge Hospital, Singapore

⁸Center for Quantitative Medicine, Office of Clinical Sciences, Duke-National University of Singapore Graduate Medical School, Singapore

Abstract

Background: Early-onset major depressive disorder (MDD) (EOD) is often particularly malignant due to its special clinical features, accompanying impaired social function, protracted recovery time, and frequent recurrence. This study aimed to observe the effects of age onset on clinical characteristics and social function in MDD patients in Asia.

Methods: In total, 547 out-patients aged 18–65 years who were from 13 study sites in five Asian countries were included. These patients had MDD diagnose according to the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition criteria. Clinical features and social function were assessed using Symptom Checklist-90-revised (SCL-90-R) and Sheehan Disability Scale (SDS). Quality of life was assessed by a 36-item Short-form Health Survey (SF-36). Analyses were performed using a continuous or dichotomous (cut-off: 30 years) age-of-onset indicator.

Results: Early-onset MDD (EOD, <30 years) was associated with longer illness ($P = 0.003$), unmarried status ($P < 0.001$), higher neuroticism ($P \leq 0.002$) based on the SCL-90-R, and more limited social function and mental health ($P = 0.006$, $P = 0.007$) based on the SF-36 and SDS. The impairment of social function and clinical severity were more prominent at in-patients with younger onset ages. Special clinical features and more impaired social function and quality of life were associated with EOD, as in western studies.

Conclusions: EOD often follows higher levels of neuroticism. Age of onset of MDD may be a predictor of clinical features and impaired social function, allowing earlier diagnosis and treatment.

Key words: Age Onset; Asia; Clinical Features; Major Depressive Disorder; Social Function

INTRODUCTION

Major depressive disorder (MDD) is a common psychiatric disorder that can be debilitating and making the burden heavier following the earlier onset. Many features of early-onset MDD (EOD) in western studies were found to be different from those of late-onset MDD (LOD), such as more suicidal attempts, higher prevalence of comorbid personality disorders, higher levels of neuroticism,^[1] a longer duration of illness, more episodes, greater symptom severity, more psychiatric symptoms associated with Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) Axis I comorbidity.^[2] EOD may be an index of a

more severe, highly comorbid disorder and is less responsive to antidepressant pharmacotherapy.^[3] The prognosis of EOD is more malignant, need a protracted time to recovery.^[4] Damage to social interaction and behaviors was found to be related to the onset of depressive symptoms.^[5] Adulthood EOD is mainly concentrated in an age range of 18–30 years.^[2,6,7] The median age of onset for mood disorders is between 25 and 32 years,^[8] and nearly half of adolescents with subthreshold depressive disorder in a community sample developed full-syndrome depressive disorder by their early 30 s.^[9] This finding was confirmed in younger adult samples using a cut-off for the age of onset of 30 years.^[10] Over the past few years, a group of psychiatrists in Asian countries, working on the Study on Aspects of Asian Depression (SAAD), have mainly collaborated to identify the clinical features of major depression in Asians. SAAD is the multinational survey in

Access this article online

Quick Response Code:



Website:
www.cmj.org

DOI:
10.4103/0366-6999.152654

Address for correspondence: Prof. Tian-Mei Si,
Peking University Institute of Mental Health, Key Laboratory of Ministry of Health (Peking University), Beijing 100191, China
E-Mail: si.tian-mei@163.com

Asia on the clinical features of MDD.^[11] Our study's objective in SAAD was to compare the clinical symptoms and social functions between EOD and LOD, to certify whether EOD has the symptoms of biocharacteristics or whether the early-onset is a predictor of some special symptoms with more impaired social function in Asia samples.

METHODS

Study sample

This cross-sectional study included 547 outpatients between 18 and 65 years old. The participants were recruited between April 2008 and February 2010 in multi-center research units at 13 mental health hospitals in five countries in Asia: China, Korea, Malaysia, Singapore, and Thailand. The inclusion criteria were as follows: (a) Age 18–65 years; (b) a positive response (“yes”) to the Mini-international Neuropsychiatric Interview (MINI) (Sheehan *et al.*, 1998) question A1 (depressed mood) and/or A2 (loss of interest), and (c) a diagnosis of MDD according to the DSM-IV criteria (American Psychiatric Association, 1994). The exclusion criteria were (a) an unstable comorbid medical condition, (b) a mood disorder due to a medical condition and/or substance abuse, (c) clinically significant cognitive impairment, (d) treatment with psychotropic medication within the previous month, (e) treatment with long-acting antipsychotic medication within the previous 3 months, and (f) treatment with benzodiazepines within the previous week. The study was approved by the ethical review boards of the participating centers, and all participants signed an informed consent form.

Measures and instruments

In this assessment, information about age, gender, marital status, work status, the length of illness, and educational level was collected using a form designed for this study. Interviews were conducted by experienced psychiatrists using standardized semi-structured interviews. A diagnosis of MDD was assessed using the MINI, according to the DSM-IV criteria.^[12] To determine the age of onset, the participants were asked to recall their age at the time of their first episode and to provide the month and year when their depression first qualified as a full episode (lasting 2 weeks). The interviewing doctors confirmed whether this information met the criteria for major depression. We used 30 years of age as the cut-off to differentiate between EOD and LOD.^[10] The clinical features of EOD (age of onset <30 years) and LOD (age of onset ≥30 years) depression are described in terms of the severity of depression, the depression subtype, and the length of illness. Symptom presentations were assessed by the Symptom Checklist-90-revised (SCL-90-R). Social function and health were assessed with the 36-item Short-form Health Survey (SF-36) and the Sheehan Disability Scale (SDS).

The SCL-90-R^[13] was designed to evaluate psychological problems and symptoms of psychopathology. This checklist involves 90 items that are clustered into nine dimensions:

Somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Each dimension is rated on a 5-point scale, from 0, representing the absence of the symptom to 4, meaning the maximum intensity score for the symptom.

The SF-36 measures physical and mental health constructs and has two composite scores: Physical component summary (PCS) and mental component summary (MCS) scores. The PCS contains four subscales: Physical function, bodily pain, role-physical, and general health. The MCS also contains four subscales: Vitality, social function, role-emotional, and mental health. These subscale scores range from 0 to 100, with higher values representing better function.^[14] The study compared EOD with LOD based on PCS and MCS scores from the SF-36.

The SDS is a patient-rated scale that assesses the illness' interference with different life domains and consists of three items evaluating impairment in work/school, social life/leisure activities, and family life/home responsibilities. Each item's score is based on a dimension of 0 (unimpaired) to 10 (highly impaired).^[15]

Statistical analysis

The data were analyzed using SPSS 17.0 (SPSS Inc., USA). The demographic and clinical characteristics of outpatients with EOD or LOD were compared using Chi-square tests for categorical data and *t*-tests and Mann–Whitney U-test, as appropriate, for continuous data. In the case of continuous data, multiple linear regression models were also fit, so step-wise linear regression analyses were used to test the effects of the age of onset on clinical characteristics and social function. In all of these regressions, the age of onset was an independent variable. Gender, marital status, work status, education level, the length of illness, and the study site were included in the models as controlling variables to observe the effects of the age of onset on clinical characteristics and social function. The significance level was set at 0.01 (two-sided) in the analyses of linear regression models to reduce type I errors.

RESULTS

In total, 556 participants were enrolled. Eighty-one patients were not enrolled for the following reasons: Refusal/unwillingness to cooperate (58 patients), lack of patience to be interviewed (14 patients), or lack of the time to participate in the study (9 patients). All participants were compensated for their time. The mean (standard deviation) time taken for completion of self-administered scales was 35.8 (14.1) min, and for a face-to-face interview was 38.1 (13.8) min. Nine enrolled patients were further excluded because they had no current major depressive episode (MDE), as confirmed by the MINI. After the exclusion, 547 participants included in the analysis met the DSM-IV diagnosis of MDD. The patients consisted of 216 individuals with EOD (<30) and 331 with LOD (≥30). The socio-demographic and clinical

characteristics of the patients are summarized in Table 1. The percentage of patients who completed secondary education was higher in the EOD group. The mean education level in the EOD group was 12.50 ± 3.34 years, compared with 10.19 ± 3.92 years in the LOD group. There were no significant differences with regard to gender. The distribution of EOD and LOD was significantly different at the study sites in Asia ($P = 0.001$). No significant difference was found for a combined Axis I diagnosis.

As observed in Table 1, there were apparent differences between the two groups in terms of clinical symptoms (as gauged by the SCL-90-R), social function (SDS), and mental impairment (SF-36). After having controlled correlated factors in the multivariate analysis [Table 2], we found that Subjects with an earlier age onset for MDD were at significantly higher risk for obsessive-compulsive, interpersonal sensitivity, depression, hostility, paranoid ideation and psychoticism

which may indicate when the age of onset was earlier, higher neuroticism with clinical features was more apparent. The EOD group presented more damaged social function, which was especially reflected by the work and school achievement factors on the SDS and the MCS factors on the SF-36.

DISCUSSION

To the best of our knowledge, this is the first multinational cross-sectional study on the character of EOD and the influence of age onset of MDD to the social function in Asia. As western studies, the patients in the Asia sample with EOD were found to exhibit some specific clinical features and more prominent impairment of social function and mental health. We found the patients with an earlier age onset for MDD are at significantly higher risk for obsessive-compulsive, interpersonal sensitivity, depression, hostility, paranoid ideation and psychoticism.

Table 1: Characteristics of the EOD and LOD groups, with a cut-off age of 30 years

Social and clinical characteristics	Early-onset ($n = 216$)	Late-onset ($n = 331$)	Total ($n = 547$)	$t/Z/\chi^2$	df	P
Age (years) mean \pm SD	26.91 ± 6.95	47.84 ± 9.14	39.61 ± 13.20	-30.33	533	<0.001
Age at first onset (years)	22.80 ± 4.68	45.31 ± 8.81	36.44 ± 13.29	-38.80	526	<0.001
Education (years)	12.50 ± 3.34	10.19 ± 3.92	11.10 ± 3.87	7.35	508	<0.001
Length of illness (years)	4.13 ± 6.53	2.53 ± 4.18	3.16 ± 5.28	-3.02		0.003*
SCL-90-R						
Somatization	1.27 ± 0.87	1.31 ± 0.83	1.30 ± 0.84	-0.63	543	0.531
Obsessive-compulsive	2.03 ± 0.88	1.76 ± 0.89	1.87 ± 0.90	3.52	543	<0.001
Interpersonal sensitivity	1.73 ± 0.90	1.26 ± 0.88	1.45 ± 0.92	6.01	543	<0.001
Depression	2.19 ± 0.88	1.95 ± 0.85	2.05 ± 0.85	3.19	543	0.002
Anxiety	1.67 ± 0.89	1.58 ± 0.85	1.61 ± 0.86	1.23	543	0.220
Hostility	1.39 ± 1.01	1.07 ± 0.82	1.20 ± 0.91	3.16	394	<0.001
Phobic anxiety	1.11 ± 0.78	0.98 ± 0.88	1.01 ± 0.86	1.38	543	0.168
Paranoid ideation	1.46 ± 0.98	1.01 ± 0.85	1.19 ± 0.93	5.51	412	<0.001
Psychoticism	1.22 ± 0.76	1.01 ± 0.72	1.10 ± 0.75	3.16	543	0.002
SF-36						
PCS	56.64 ± 18.31	54.28 ± 18.63	55.21 ± 18.52	1.46	542	0.146
MCS	32.80 ± 16.37	36.93 ± 18.03	35.30 ± 17.49	-2.71	543	0.007
SDS total	18.25 ± 7.16	16.41 ± 8.44	17.14 ± 8.00	2.73	509	0.006
Gender: Male, n (%)	80 (37.0)	115 (34.7)	195 (35.6)	0.30	1	0.584
Nationality						
Chinese	127 (58.8)	163 (49.2)	290 (53.0)	19.79	5	0.001
Korean	28 (13.0)	73 (22.1)	101 (18.5)			
Thailand	33 (15.2)	69 (20.8)	102 (18.6)			
Indian	8 (3.7)	16 (4.8)	24 (4.4)			
Malay	18 (8.3)	9 (2.7)	27 (4.9)			
Others	2 (0.9)	1 (0.3)	3 (0.5)			
Work status						
Unemployed	110 (50.9)	173 (52.3)	283 (51.7)	0.09	1	0.759
Completed secondary education						
Yes, n (%)	147 (68.1)	131 (39.6)	278 (50.8)	42.41	1	<0.001
Marital status						
Unmarried	152 (70.4)	77 (23.3)	229 (41.9)	119.18	1	<0.001
MINI-SCID						
Combined Axis I diagnosis	39 (18.1)	70 (21.1)	109 (19.9)	0.78	1	0.376

*Mann-Whitney U-test. PCS: Physical component summary; MCS: Mental component summary; SD: Standard deviation; SCL-90-R: Symptom Checklist-90-Revised; SF-36: Short Form-36; SDS: Sheehan Disability Scale; SCID: Structured Clinical Interview for DSM; MINI: Mini-international Neuropsychiatric Interview; DSM: Diagnostic and Statistical Manual of Mental Health Disorders; EOD: Early-onset depression; LOD: Late-onset depression.

Table 2: Effects of age onset on clinical characteristics and perceived social support (n = 547, EOD: 215)*

	Constant	B ^{§§}	SE	F	df	95% CI	P
SDS							
Work/school	7.41	-1.044	0.264	11.85	2	-1.56, -0.53	<0.001 [†]
Social life/leisure	5.42	-0.223	0.298	4.76	5	-0.81, 0.36	0.455 [‡]
Family	4.48	-0.089	0.278	2.38	4	-0.63, 0.46	0.749 [§]
SDS (total)	17.88	-1.986	0.688	11.51	2	-3.34, -0.63	0.004 [†]
SF							
PCS	69.80	0.935	1.863	6.87	7	-2.73, 4.60	0.616
MCS	28.46	4.238	1.524	7.73	1	1.24, 7.23	0.006
SCL-90-R							
Somatization	0.92	-0.008	0.083	9.05	7	-0.17, 0.16	0.927
Obsessive-compulsive	1.98	-0.214	0.083	27.02	3	-0.38, -0.05	0.010 [¶]
Interpersonal sensitivity	2.01	-0.389	0.085	27.58	3	-0.56, -0.22	<0.001 [¶]
Depression	2.11	-0.179	0.082	9.16	4	-0.34, -0.02	0.029 ^{**}
Anxiety	1.50	-0.062	0.085	7.61	6	-0.23, 0.11	0.467 ^{**}
Hostility	1.49	-0.337	0.078	14.82	2	-0.49, -0.18	<0.001 [†]
Phobic anxiety	1.08	-0.062	0.085	7.66	6	-0.23, 0.10	0.461 ^{**}
Paranoid ideation	1.372	-0.348	0.088	22.87	4	-0.52, -0.18	<0.001 ^{**}
Psychoticism	1.23	-0.161	0.072	16.83	3	-0.30, -0.02	0.025 [†]

*Using age onset as independent variable after controlling for gender, the length of illness, study sites, work, marital status, education (years); [†]Study sites as covariates significantly in the equation; [‡]Work, marital status, education (years), and study sites as covariates significantly in the equation; [§]Gender, work status, and study sites as covariates significantly in the equation; ^{||}Using gender, marital status, education (years), the length of illness, study sites, and work status as covariates significantly in the equation; [¶]Using study sites and marital status as covariates significantly in the equation; ^{**}Using gender, marital status, and study sites as covariates significantly in the equation; ^{**}Using gender, marital status, education (years), study sites, and work status as covariates significantly in the equation; ^{**}Using marital status, education (years), and study sites as covariates significantly in the equation; ^{§§}Beta of the multiple models, showing the variation of dependent variables (Y-axis) following an increase in the age of onset (X-axis, a continuous indicator). CI: Confidence interval; SE: Standard error; EOD: Early-onset depression; SDS: Sheehan Disability Scale; SF: Short Form; PCS: Physical component summary; MCS: Mental component summary; SCL-90-R: Symptom Checklist-90-Revised.

Several previous western studies have identified the characteristics of EOD, including a longer length of illness, longer current episodes, more recurrence, and poorer marital and work statuses.^[2] Those epidemiologic results were confirmed by our research, with work status being the exception. Higher education levels were found in our EOD group, which was supported by Gollan *et al.*^[16] Patients with higher education may have more mental stress.

Observing the clinical characteristics of EOD is important for diagnosis and therapy. Our results showed that depression occurring at an earlier age of onset was more severe than at a later age of onset.^[17] Higher levels of clinical symptoms of neuroticism in EOD were shown in our study (i.e., more obsessive compulsion, interpersonal sensitivity, hostility, paranoid ideation, and psychoticism), which might reflect an association with vulnerable personality.^[18,19] As reported based on Norwegian data, vulnerable personality traits present an additional affirmation of the early occurrence of mood symptoms.^[20] Several abnormal personality traits proved to be more common in EOD. This finding should be further confirmed in longitudinal analyses.

The EOD group suffered more impairment of social function in our study, which is indicative of a poor prognosis in terms of both chronicity and disability.^[6] EOD also related to a progressive decrease in social interaction and a loss of reinforcement of social behaviors.^[5] In our study, it was confirmed more severe impairment of work or

school achievements in EOD. The impaired mental health ($P = 0.006$) and quality of life revealed by our research may reflect memory impairment, which is prevalent in patients with a long history of depression and an early-onset age.^[21] The existence of adults with EOD and behavioral disinhibition may suggest possible etiologic mechanisms.^[22] However, further studies are needed to prove this point.

Several limitations of this study should be taken into account. First, it is difficult to accurately remember the age of onset of depression, which could cause recall bias. Determining the age of onset during a depressive episode adds another source of bias because cognition is affected by the depressive status. Because the mean age was relatively young (39.61 years), the recollection bias may be smaller than in studies on elderly subjects. Second, it was impossible to make subtler distinctions and to determine the exact time from the onset of the first symptoms to the onset of the diagnosed symptoms. Third, because this study had a cross-sectional design, we cannot be certain whether an early age of onset is a risk factor for major depression or the differences between EOD and LOD are due to the cohort effect. Further trials are needed to study this issue. Fourth, different language used in translating instruments in the countries may have impacted the results. Lastly, this study included voluntary outpatients diagnosed as having MDD without severe cognitive impairment, the exclusion criteria include treatment with psychotropic medication in the previous month. This could potentially exclude a large

number of patients with MDD seen in outpatient settings and substantially limits the generalizability of the results. So there was a degree of selection bias in our study.

This multinational participative study in Asia suggests that there are several differences in the symptoms and characteristics of EOD and LOD. An early age of onset of MDD seems to have certain distinct demographic and clinical characteristics, including high neuroticism. In addition, EOD can be considered as a more chronic form of depression with a longer duration of episodes. Furthermore, an early age of onset of major depression is associated with more vulnerability in personality formation, which is finally expressed via impairment of social function and higher neuroticism. Our findings in Asia parallel the previous findings in western settings. The age of onset may be a predictor of major depression, allowing the evaluation of clinical features and social function prognosis. This predictor needs to be kept in mind to improve the strategies for discernment of potential MDD in advance.

ACKNOWLEDGMENTS

This study is the work of the Mood Disorders Research: Asian and Australian Network (MD-RAN), which comprises the following members (in alphabetical order of family name [in capital letters]): Dianne Bautista (Singapore), Chia-Hui Chen (Taiwan, China), Lin Chen (China), Hong-Choon Chua (Singapore), Yi-ru Fang (China), Ahmad Hatim (Malaysia), Jin Pyo Hong (Korea), Yan-Hong Liu (China), Tian-Mei Si (China), Manit Srisurapanont (Thailand) and Yun-ai Su (China). The authors would like to thank all study site personnel for contributing to the work achieved. Statistical analysis was provided by the Singapore Clinical Research Institute.

REFERENCES

1. van Lang ND, Ferdinand RF, Verhulst FC. Predictors of future depression in early and late adolescence. *J Affect Disord* 2007;97:137-44.
2. Zisook S, Rush AJ, Alcala A, Alpert J, Balasubramani GK, Fava M, *et al.* Factors that differentiate early vs. later onset of major depression disorder. *Psychiatry Res* 2004;129:127-40.
3. Klein DN, Arnow BA, Barkin JL, Dowling F, Kocsis JH, Leon AC, *et al.* Early adversity in chronic depression: Clinical correlates and response to pharmacotherapy. *Depress Anxiety* 2009;26:701-10.
4. Williams JM, Barnhofer T, Crane C, Duggan DS, Shah D, Brennan K, *et al.* Pre-adult onset and patterns of suicidality in patients with a history of recurrent depression. *J Affect Disord* 2012;138:173-9.
5. Corcoran CM, Kimhy D, Parrilla-Escobar MA, Cressman VL, Stanford AD, Thompson J, *et al.* The relationship of social function to depressive and negative symptoms in individuals at clinical high risk for psychosis. *Psychol Med* 2011;41:251-61.
6. Parker G, Roy K, Hadzi-Pavlovic D, Mitchell P, Wilhelm K. Distinguishing early and late onset non-melancholic unipolar depression. *J Affect Disord* 2003;74:131-8.
7. Wainwright NW, Surtees PG. Childhood adversity, gender and depression over the life-course. *J Affect Disord* 2002;72:33-44.
8. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Arch Gen Psychiatry* 2005;62:593-602.
9. Klein DN, Shankman SA, Lewinsohn PM, Seeley JR. Subthreshold depressive disorder in adolescents: Predictors of escalation to full-syndrome depressive disorders. *J Am Acad Child Adolesc Psychiatry* 2009;48:703-10.
10. Bukh JD, Bock C, Vinberg M, Gether U, Kessing LV. Differences between early and late onset adult depression. *Clin Pract Epidemiol Ment Health* 2011;7:140-7.
11. Jeon HJ, Peng D, Chua HC, Srisurapanont M, Fava M, Bae JN, *et al.* Melancholic features and hostility are associated with suicidality risk in Asian patients with major depressive disorder. *J Affect Disord* 2013;148:368-74.
12. Pincus HA, Wise T, First MB, McQueen LE. DSM-IV primary care version: An opportunity for general hospital and consultation-liaison psychiatrists? *Gen Hosp Psychiatry* 1995;17:324-5.
13. Fishbain DA, Cole B, Cutler RB, Lewis J, Rosomoff HL, Rosomoff RS. Chronic pain and the measurement of personality: Do states influence traits? *Pain Med* 2006;7:509-29.
14. Tang WK, Chen YK, Lu J, Ahuja AT, Chu WC, Mok VC, *et al.* Cerebral microbleeds and quality of life in acute ischemic stroke. *Neurol Sci* 2011;32:449-54.
15. Sheehan KH, Sheehan DV. Assessing treatment effects in clinical trials with the discan metric of the Sheehan Disability Scale. *Int Clin Psychopharmacol* 2008;23:70-83.
16. Gollan J, Raffety B, Gortner E, Dobson K. Course profiles of early- and adult-onset depression. *J Affect Disord* 2005;86:81-6.
17. Korten NC, Comijs HC, Lamers F, Penninx BW. Early and late onset depression in young and middle aged adults: Differential symptomatology, characteristics and risk factors? *J Affect Disord* 2012;138:259-67.
18. Brodaty H, Luscombe G, Parker G, Wilhelm K, Hickie I, Austin MP, *et al.* Early and late onset depression in old age: Different aetiologies, same phenomenology. *J Affect Disord* 2001;66:225-36.
19. Yang F, Li Y, Xie D, Shao C, Ren J, Wu W, *et al.* Age at onset of major depressive disorder in Han Chinese women: Relationship with clinical features and family history. *J Affect Disord* 2011;135:89-94.
20. Oedegaard KJ, Syrtstad VE, Morken G, Akiskal HS, Fasmer OB. A study of age at onset and affective temperaments in a Norwegian sample of patients with mood disorders. *J Affect Disord* 2009;118:229-33.
21. Gorwood P, Corruble E, Falissard B, Goodwin GM. Toxic effects of depression on brain function: Impairment of delayed recall and the cumulative length of depressive disorder in a large sample of depressed outpatients. *Am J Psychiatry* 2008;165:731-9.
22. King CA, Knox MS, Henninger N, Nguyen TA, Ghaziuddin N, Maker A, *et al.* Major depressive disorder in adolescents: Family psychiatric history predicts severe behavioral disinhibition. *J Affect Disord* 2006;90:111-21.

Received: 08-12-2014 **Edited by:** Yi Cui

How to cite this article: Liu YH, Chen L, Su YA, Fang YR, Srisurapanont M, Hong JP, Hatim A, Chua HC, Bautista D, Si TM. Is Early-onset in Major Depression a Predictor of Specific Clinical Features with More Impaired Social Function?. *Chin Med J* 2015;128:811-5.

Source of Support: Nil. **Conflict of Interest:** None declared.