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•ORIGINAL RESEARCH ARTICLE•

The Association of Insight and Change in Insight with Clinical Symptoms in Depressed Inpatients

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Background: Lack of insight has been extensively studied and was found to be adversely correlated with impaired treatment compliance and worse long term clinical outcomes among patients with schizophrenia, while not much is known about this phenonmenon in patients with severe depression.

Aim: To explore the correlates of insight and its relation to symptom changes among the most seriously ill patients with affective disorders, those who require hospitalization.

Methods: Patients hospitalized in a large psychiatric hospital in south China with either major depressive disorder (MDD)(N=55) or bipolar depression (BD) (N=85) based on ICD-10 diagnostic criteria were assessed with the Insight and Treatment Attitudes Questionnaire (ITAQ) one week after admission and at the time of discharge. Clinical symptoms were measured at the same time with the Hamilton Rating Scale for Depression (HAMD-17) and the Depression subscale of the Symptom Check list-90 (SCL-90). Length of stay (LOS), duration of illness, duration of untreated mood disorder, number of previous episodes of depression and previous admissions for depression were documented during interviews with patients and their families and from a review of medical records. Bivariate correlations and multiple regression analysis were used to examine the relationship of sociodemographic characteristics, clinical symptomatology and clinical history, to insight at the time of admission. The relationships between change in clinical symptoms and change in insight from admission to discharge were also examined.

Results: Stepwise multiple regression models suggested that any previous admissions for depression and higher anxiety factor scores on the HAMD-17 are significant independent predictors of insight accounting for 22.9% of the variance. Multiple regression analysis residual change scores (change scores adjusted for baseline values) on the ITAQ showed that improved insight over average stays of 51 days were inversely related to the residual psychomotor retardation factor on the HAMD-17 accounting for 9.1% of the variance.

Conclusions: More severe anxiety symptoms and previous hospitalization for depression were associated with greater insight into illness at admission. Reduction of motor retardation symptoms during treatment was associated with greater improvement in insight to the time of discharge. The patients who are sicker at admission and who show more improvement in psycho-motor retardation show the greatest insight.

Key words: insight; clinical symptoms; depressive

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1. Introduction

Research over the past few decades has found that lack of insight may adversely impact treatment compliance and clinical outcomes among patients with diverse psychiatric disorders.[1-4] A large body of research has found that level of insight or improvement of insight after acute treatment might be one of the most important predictors for the prognosis of patients

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with schizophrenia. Lack of insight into illness has long been recognized as a central characteristic of schizophrenia. Studies have heavily investigated the correlations between insight and clinical symptoms. It has been demonstrated that there were significant negative correlations between insight and the severity of positive symptoms[5, 6]and/or negative symptoms.[6-9] Some studies have also noted a negative relationship, more specifically, between symptoms of disorganization and insight.[8,10, 11] Some studies also found a positive relationship between the degree of insight and depressive symptoms in patients with schizophrenia.[12, 13]

Although less studied, impaired insight has also been found in bipolar disorder (BP) and major depressive disorders (MDD). A two year follow up study for BP-1 patients have suggested that insight in patients with BP-1 is comparatively intact during recovery stages but is particularly impaired during the acute phases of the disease[14] and that frequent episodes of mood disturbance may cause insight to deteriorate.[15] Impaired insight also was found in the majority of outpatients with depressive disorder.[16] Similar to schizophrenia, lack of improvement in insight was found to be associated with poor outcome in mood disorder, thus it would be meaningful to extensively explore the important correlations between insight and clinical symptoms to determine the critical symptoms for insight recovery.

In this study, we recruited depressive inpatients in a large psychiatric hospital in south China. The aims of this study were to examine the relationship between insight and clinical depressive symptoms, clinical history, and the relationship between change in insight and change in clinical depressive symptoms, in a group of severely depressed patients to explore the specific symptoms associated with better insight.

2. Methods

2.1 Participants and data collection

A total of 140 subjects were recruited from the Guangzhou Psychiatric Hospital, the largest psychiatric hospital in south China. Inclusion criteria: The subjects were diagnosed by consecutive recruitment at admission with either major depressive disorder (MDD) (n=55) or bipolar depressive disorder (BPDD) (n=85) based on the International Classification of Disease (ICD-10)[17] diagnostic criteria. The samples were recruited randomly from inpatient psychiatric treatment from July 2012 to June 2013. Exclusion criteria: Individuals with mental retardation, organic brain disorders, or drug abuse as a primary diagnosis were excluded. Diagnosis according to ICD-10 criteria was established by two experienced psychiatrists based on clinical interviews and systemic review of medical records. There was no loss since all participants were inpatients.

All of the participants provided written informed consent. After providing written informed consent, patients were assessed in the week after admission and then again at the time of discharge. Before the study, an inter-rater reliability exercise of all of the clinical rating instruments was conducted on 20 patients with symptomatic schizophrenia. Assessment of inter-rater reliability for raters in this study was in the excellent to good range for all the scales used, with intra-class correlations ranging from 0.90 to 0.96. There were 6 raters after scale rater training and all of the raters were psychiatrists. The study was approved by the Huiai hospital ethics committee.

Sociodemographic data including age, gender, education, and duration of illness were derived from medical records. Past mood-disorder diagnoses or hospitalization for depressive disorder or for psychoses were garnered from diagnostic interviews and reviews of the medical record. All of the medical records were collected by clinicians.

2.2 Measures

Clinical symptoms were measured using the Hamilton Rating Scale for Depression (HAMD-17)[18] and by the depression, anxiety and psychosis subscales of the Symptom Check List-90 (SCL-90).[19] The HAMD-17 total scores range from 0 to 52 with higher scores indicating more severe depression. Several researchers have investigated the psychometric properties of the scale and the factor structure of the Hamilton is multidimensional but with poor replication across samples.[20] The Chinese version of the HAMD-17 has been shown to have adequate validity and reliability with 5-factors[21] including: 1) anxiety (psychic anxiety, somatic anxiety, gastrointestinal somatic symptoms, general somatic symptoms, hypochondriasis, loss of weight), 2) agitation (agitation, insight), 3) suicidality (depressive mood, suicide, genital symptoms), 4) psycho-motor retardation (feelings of guilt, lack of work and other activities, motor retardation) and 5) insomnia (early insomnia, middle insomnia, late insomnia). The insight item was excluded from the agitation factor in the analyses used in this paper to prevent spurious correlations with the measure of insight (the ITAQ).[2]

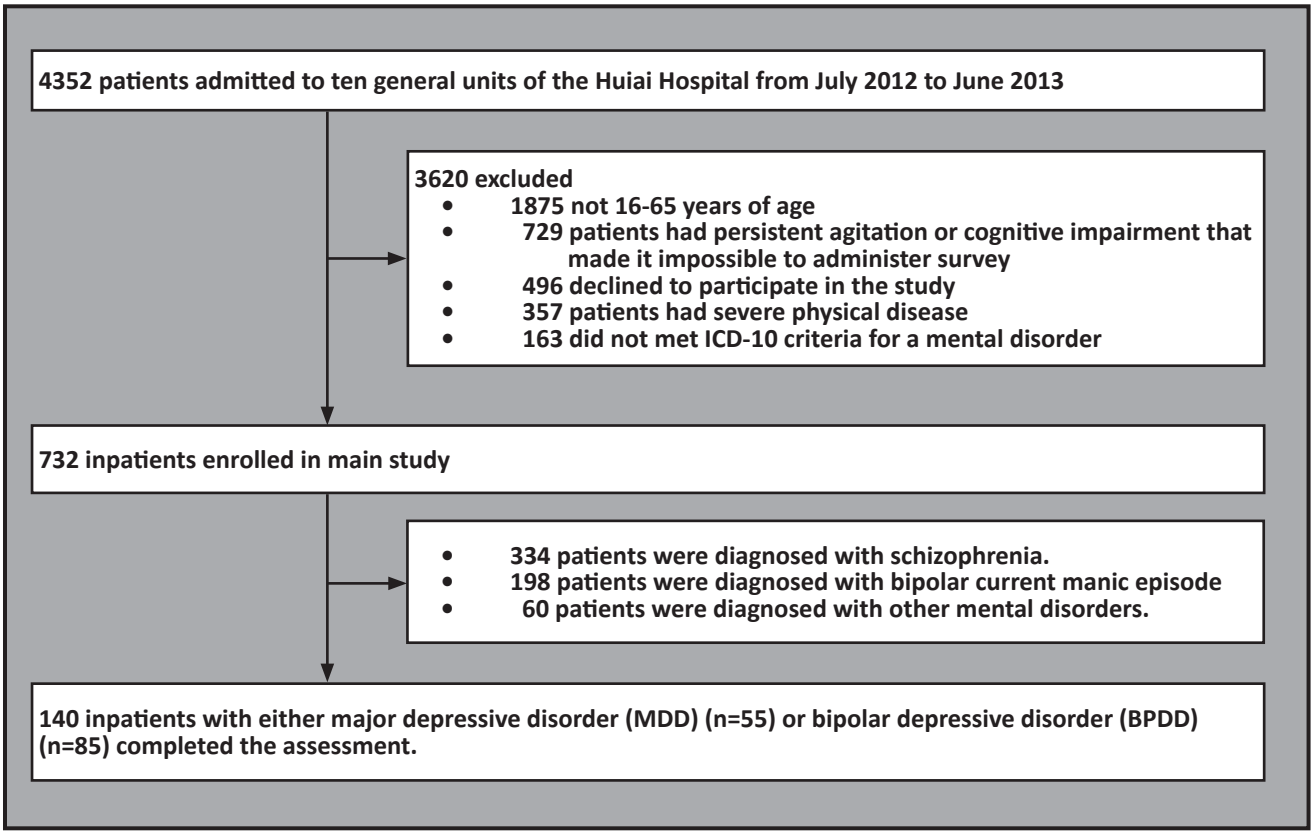
Insight was assessed by the Insight and Treatment Attitudes Questionnaire (ITAQ).[2] The ITAQ consists of 11 items (scored on a 0-2 scale) that assess the patient's view of whether they have a psychiatric illness and their need for treatment. The items are summed and the total, can range from 0 to 22 with higher scores reflecting greater insight.

The ITAQ, HAMD-17, and the three SCL-90 subscales were all assessed both in the week after admission and at the time of discharge.

2.3 Statistical analyses

The analysis proceeded in 2 stages, including correlation analysis and multiple regression analyses. Firstly, bivariate correlations were calculated separately between baseline ITAQ scores and sociodemographic,

Figure 1. The flowchart of the study



clinical history, baseline values of the HAMD-17, and SCL-90 subscales. After using multiple regression for adjustment, residual change scores represented the change from baseline to discharge adjusted for the baseline measurements including ITAQ, HAMD-17, and SCL-90. And then bivariate correlation analyses were used to examine the relationship between the residual change ITAQ scores and baseline variables, along with residual scores of HAMD-17 and SCL-90. Spearman correlation was used for non-normally distributed variables, while Pearson correlation was used for normally distributed ones (see Table 2 and Table 3).

Secondly, multiple regression analyses were used to measure the association between baseline/residual ITAQ scores and statistically significant variables in correlation analysis. Dependent variables included HAMD-17 factor Anxiety, and SCL-90 depression subscale for baseline ITAQ (see Table 4). And for residual ITAQ change scores (see Table 5), dependent variables including residual HAMD-17, factor suicide, and factor retardation change scores. Statistical analyses were performed using SPSS 17.0.

3. Results

The mean(SD) age of the sample was 32.53 (11.9) years, range 15-62 years (Table 1). The sample was nearly evenly split between men (*N*=66, 47.1%) and women (*N*=74, 52.9%). The majority (*N*=85, 60.7%) were diagnosed with bipolar depression and 39.3% (*N*=55) with unipolar depression. Most (*N*=87, 62.1%) displayed some psychotic features. The mean(SD) number of previous episodes of depression was 1.67(1.3), range 0-6, and approximately 44.6% (*N*=62) subjects had previous admissions for depression. Overall, baseline admission HAMD-17 mean scores reflected moderate severity of depressive symptoms (23.17 (16.4), range7-49). The ITAQ mean(SD) score was 8.58 (6.3), range 0-22.

Bivariate correlation analyses (Table 2) showed that indicators of more severe past or current illness were significantly and positively correlated with the total ITAQ score at admission including: any previous admission for depression (r=0.33, P<0.001), the number of previous episodes of depression (r=0.24, P=0.004), the number of previous psychiatric hospitalizations (r=0.205, P=0.016), the current anxiety factor score of the HAMD-17 (r=0.28, P=0.001) and the depression subscale of SCL-90 at the time of admission (r=0.26, P=0.004). Stepwise multiple regression model showed any previous admissions for depression (B=4.334, P<0.001) and the anxiety factor score of HAMD-17 (B=0.344, P<0.01) to be the significant independent predictors of insight accounting for 22.9% of the variance (Table 4).

Table 1. Insight and clinical and socio-demographic characteristics of the subjects (n=140)[a], the item on insight in the HAMD-17 was not included in agitation factor

	n(%)	Mean(SD)	Range
Clinical characteristics			
Bipolar disorder	85(60.7)		
Psychotic features	87(62.1)		
Any previous admission for depression	62(44.6)		
Number of previous episodes of depression		1.67(1.3)	0~6
Duration of illness (month)		75.44(89.1)	0~504
Duration of untreated mood disorder (weeks)		52.63(155.8)	1~1560
Length of stay (LOS) (days)		51.01(34.0)	2~182
Number of previous hospitalizations for psychosis (times)		1.72(1.7)	1~14
Baseline clinical scale and change at follow up			
ITAQ (admission)		8.58(6.3)	0~22
The change in ITAQ at discharge		5.43(5.1)	-9~22
HAMD-17 (admission)		23.17(16.4)	7~47
The change in HAMD-17 at discharge		-15.06(9.5)	-43~9
Anxiety factor		6.12(4.5)	0~16
The change in anxiety factor		-3.83(3.8)	-15~7
Agitation factor[a]		1.57(1.1)	0~4
The change in agitation factor		-0.96(1.1)	-4~2
Suicide factor		3.76(2.6)	0~10
The change in suicide factor		-3.01(2.5)	-10~2
Retardation factor		4.81(3.1)	0~11
The change retardation factor		-3.09(2.8)	-10~4
Insomnia factor		3.73(1.9)	0~6
The change in insomnia factor		-3.17(1.9)	-6~1
SCL-90 scale			
The depression subscale (admission)		14.09(11.3)	0~43
The change in depression subscale (discharge)		-6.35(9.9)	-35~12
The psychosis subscale (admission)		7.64(7.9)	0~34
The change in psychosis subscale (discharge)		-2.97(6.3)	-24~14
The anxiety subscale (admission)		9.61(8.7)	0~38
The change in anxiety subscale (discharge)		-4.69(7.3)	-28~13

ITAQ,Insight and Treatment Attitudes Questionnaire;SCL-90,Symptom Check List-90; HAMD, Hamilton Rating Scale for Depression

Bivariate correlation analyses of residual change scores with change in the ITAQ over average hospital stays of 51 days (Table 3) showed significant inverse relationships with the residual total HAMD-17 change score (r=-0.36, P<0.001), the residual suicide factor (r=-0.24; P =0.005) and the residual psycho-motor retardation factor (r=-0.32, P < 0.001). Stepwise multiple regression analysis showed that the residual psycho-motor retardation factor (B=-0.98, P < 0.001) was the only significant independent predictor of insight change accounting for 9.1% of the total variance (Table 5).

4. Discussion

4.1 Main findings

This study examined correlates of insight at the time of hospital admission and change in insight from admission to discharge in a sample of patients diagnosed with

Table 2. Variables associated with insight measured by the baseline ITAQ using Bivariate Correlations

	r	*p*
†Age(years)	0.060	0.482
‡Gender	0.007	0.932
†Education(years)	0.061	0.483
‡Marital Status	0.029	0.737
¤‡Diagnosis	0.115	0.180
‡Psychotic features	-0.145	0.090
‡Any previous admission for depression	0.330	<0.001**
‡Number of previous episodes of depression	0.244	0.004**
†Duration of illness (month)	0.118	0.168
†Duration of untreated mood disorder (weeks)	-0.105	0.222
†Length of stay (LOS) (days)	0.045	0.598
‡Number of previous psychiatric hospitalizations	0.205	0.016*
†HAMD-17 (admission)	0.097	0.256
Anxiety	0.280	0.001**
Agitation	0.003	0.971
Suicide	0.039	0.648
Retardation	0.024	0.783
Insomnia	0.011	0.895
†SCL-90 (admission)		
The depression subscale	0.259	0.004**
The psychosis subscale	0.144	0.120
The anxiety subscale	0.180	0.052

¤Diagnosis:1= bipolar disorder;2= depressive disorders.
†Pearson correlation.
‡Spearman correlation.
***p*<0.05, ****p*<0.01**

MDD or BPDD and found that more severe anxiety symptoms and previous hospitalization for depression were associated with greater insight into illness at admission and that reduction of motor retardation symptoms during treatment was associated with greater improvement in insight at the time of discharge.

In the week after admission our sample was severely depressed with HAMD-17 mean scores of 23.17, close to that reported for major depressive episodes. [18] Baseline insight in our sample was most strongly and positively associated with the anxiety symptoms at admission.

This finding was the similar to those of previous studies [22-24] in affective disorder as well as in schizophrenia[6, 13] which found that depressive patients with poor insight demonstrated greater use of self-deception and reported fewer depressive and anxiety symptoms.[24] Meta-analytic evidence[6] in schizophrenia also suggests that there is a positive relationship between insight and mood symptoms in schizophrenia and in one study anxiety was specifically correlated, albeit modestly with insight in schizophrenia.[25, 26] It thus seems that someone who had more distress from anxiety was more willing to accept treatment than someone who had suicidal symptoms or psychomotor retardation. This could be generating insight and awareness of illness.

The present study also found that the previous experience of hospitalization for depression was also a significant independent predictor of insight into depressive illness, no doubt because repeated experiences of severe illness enhances awareness of the severity of psychiatric problems. There were also positive correlations between baseline ITAQ scores and the number of previous episodes of depression, presumably for the same reason - experience teaches. This finding was also consistent with a previous study which also found that previous episodes of depression, but not episodes of mania, correlated with increased insight.[27] The finding also supported the depressive realism hypothesis[28, 29] which posits that depressed people have a more accurate view of reality than non-depressed people.

Table 3. Variables associated with insight measured by the residual ITAQ change scores using Bivariate Correlations

	r	*p*
†Age(years)	-0.059	0.530
‡Gender	-0.076	0.417
†Education(years)	0.109	0.251
‡Marital Status	-0.026	0.780
‡¤Diagnosis	-0.103	0.270
‡Psychotic features	0.079	0.432
‡Any previous admission for depression	0.034	0.716
‡Number of previous episodes of depression	0.088	0.349
†Duration of illness (month)	-0.087	0.352
†Duration of untreated mood disorder (weeks)	-0.105	0.222
†Length of stay (LOS) (days)	0.045	0.598
‡Number of previous hospitalizations for psychosis (times)	-0.040	0.671
§†The residual HAMD-17 change scores	-0.356	<0.001**
The residual anxiety factor scores	-0.060	0.493
The residual agitation factor scores	-0.129	0.141
The residual suicide factor scores	-0.242	0.005**
The residual retardation factor scores	-0.320	<0.001**
The residual insomnia factor scores	-0.067	0.448
§†The residual SCL-90 change scores		
The residual depression subscale of the SCL-90 change scores	-0.081	0.427
The residual psychosis subscale of the SCL-90 change scores	0.005	0.965
The residual anxiety subscale of the SCL-90 change scores	-0.100	0.334

§The residual change scores adjusted for the baseline variable values.
¤Diagnosis:1= bipolar disorder;2= depressive disorders.
†Pearson correlation.
‡Spearman correlation.
*p<0.05, **p<0.01

Table 4. Variables associated with insight measured by the baseline ITAQ using stepwise multiple regression

Independent variables	Dependent variable [a]			
	B	Beta	*t*	*p*
Any previous admission for depression	4.334	0.349	4.010**	0.000
Anxiety factor of HAMD-17	0.344	0.258	2.957**	0.004

Stepwise model (initial and final steps shown). R^2 = 0.166 for initial step; R^2 = 0.229 for final step.
[a] Dependent variable: baseline ITAQ scores *P<0.05 **P<0.01

Table 5. Variables associated with insight measured by the residual ITAQ change scores using stepwise multiple regression

Independent variables	Dependent variable [a]			
	B	Beta	*t*	*p*
The residual retardation factor of HAMD-17 scores	-0.982	-0.301	-2.963	0.004*

R^2 = 0.091
[a] Dependent variable: the residual ITAQ change scores
*P<0.05

Some of our findings differed from previous studies that found significant relationships between gender, age, diagnosis, marital status and insight.[14,16,30-32] In addition, we found no relationship between either insight or change in insight and psychotic features confirming that, as others have found, some results differ across studies.

Several studies have examined the relationship between change in insight and change in symptoms in psychotic illnesses, and have generally shown that change in insight tends to be related to reductions in some symptoms.[2,6,13,23] But most of these studies involved patients with schizophrenia (SZ) or bipolar disorder[2,5]rather than depression. Yen et al [23] found that a high proportion of patients with bipolar disorder showed improvement in their total insight score after remission of manic symptoms. Improvement in insight however, has been related to a worsening mood in schizophrenia, although depression can be a sign of abatement of psychotic symptoms in that disorder.[7]

Like previous studies [15, 33] our data showed small but significant improvement in insight over time (the average residual change score of ITAQ was 0.0 (4.28), t=-12.579, p<0.001). The present study found that, unlike baseline relationships where insight was associated with greater severity, there was a negative correlation between change in clinical symptoms, especially psychomotor retardation symptoms, and change in insight, i.e. greater reduction in symptoms was associated with greater insight. The psycho-motor retardation symptoms in the 5-factor model used in this study used included feelings of guilt, poor work and low levels of other activities, as well as motor retardation. Thus, reduction in the severity of these symptoms may benefit patients by both reducing current distress and by improving insight and perhaps facilitating adherence to prescribed treatments after discharge. A previous study of vascular depression similarly found that patients with worsening psycho-motor retardation and agitation had declining insight.[34] Perhaps more attention should be paid to work and activities, guilt, retardation symptoms not only through antidepressant pharmacotherapy but also with Cognitive Behavioral Therapy (CBT),[35,36] Vocational rehabilitation, or social skills training[37] to foster both recovery and the development of insight.

4.2 Limitations

Several limitations of the present study should be noted. Cross-sectional research design limited the possibility to draw the causal relationship between variables. The core measure used in our study, the ITAQ, [2]has most often been used to measure treatment adherence in psychopharmacologic research of patients with schizophrenia. Our application of this measure to acute affective disorder has not previously been validated.[38] The lack of longer term follow-up is another limitation of our study.

Insight levels were evaluated just at admission and discharge, while a more relevant finding would address the development of insight and its association with outcomes over the long term.

4.3 Implications

We found that at baseline hospitalized patients with major depressive episodes who had more serious anxiety symptoms and more experience of past hospitalization for depression had better insight. In contrast, greater reduction in psycho-motor retardation symptoms was associated with greater increase in insight from admission to discharge. This study thus suggests that it may be helpful for hospitalized patients with major depressive disorder to receive psychosocial intervention as early as possible during the hospitalization as such interventions may reduce psychomotor retardation and thereby foster increased insight which may improve treatment adherence after discharge and improve longer term clinical outcomes.

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Conflicts of interest statement

The authors declare no conflicts of interest related to this manuscript

Ethical approval

The study protocol was approved by the Guangzhou Huiai Hospital ethics committee.

Informed consent

All the patients and their guardians provided written informed consent to participate in the study.

Authors' contribution

Dr. He designed the study and wrote the protocol. Dr. Chang collected the data and undertook the statistical analysis and wrote the first draft of the manuscript and worked with Dr. He and Dr. Ma on the final preparation. All authors contributed to and have approved the final manuscript.

抑郁症患者临床症状伴随的自知力与自知力变化之间的关系

何红波，常青，马亚荣

背景：自知力缺乏已经被广泛的研究并且发现与精神分裂症患者受损的治疗依从性和长期临床治疗效果较差相关，但是很少研究表明这种现象也存在于严重的抑郁症患者中。

目的：探讨情感障碍、需要住院治疗的最严重的情感障碍患者的自知力及其与症状变化之间的关系。

方法：根据 ICD-10 诊断标准从中国南部的一家大型精神科医院纳入了住院抑郁症患者（MDD）（N = 55）或双相抑郁症患者（BD）（N = 85），在他们住院一周和出院时采用自知力与治疗态度问卷（ITAQ）进行评估。同时也采用汉密尔顿抑郁量表（HAMD-17）和症状自评量表抑郁量表（SCL-90）测量临床症状。在对病人及其家属的访谈中，记录了住院时间、疾病持续时间、未治疗情绪紊乱的持续时间、既往抑郁发作次数、和以往的抑郁症入院记录。采用二分类相关分析和多元回归分析来研究社会人口学特征、临床症状、和临床病史与入院时自知力之间的相关性。对临床症状的变化和从入院到出院之间自知力的变化之间的关系也进行了研究。

结果：多元逐步回归模型显示既往的抑郁症入院记录和 HAMD-17 中较高的焦虑因子分都是自知力的显著独立预测因素，占方差的 22.9%。ITAQ 的多元回归分析残差变化得分（基线值矫正后的评分变化）显示平均住院超过 51 天对自知力的改善与精神发育迟滞因子负相关，占方差的 9.1%。

结论：较严重的焦虑症状和抑郁症的既往住院史与入院时自知力方面的疾病有关。治疗期间运动迟缓症状的减轻与出院时间对自知力较大的改善之间是相关的。入院时病情更严重并且精神发育迟滞改善更大的患者表现出最大的自知力。

关键词：自知力；临床症状；抑郁

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