Impulsivity in bipolar disorders in a Tunisian sample

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A B S T R A C T

Impulsivity as a trait characteristic is increased in bipolar disorder and may be a core factor of the illness. The objectives of our work are to evaluate the level of impulsivity among patients with bipolar disorder and to study its relation with mood state, alcohol misuse, suicide attempts and other socio-demographic and clinical factors. We measured impulsivity in 60 subjects with bipolar disorder in relationship to socio-demographic and clinical variables. The subjects completed Data included socio-demographic details and clinical variables, the Barratt Impulsiveness Scale (BIS-11) in an Arabic version to assess impulsivity, The Mini International Neuropsychiatric Interview "MINI" version 05 to screen for alcohol abuse or dependence and mood graphic rate scale (MGRS) to evaluate mood state. Our results show that the mean score of BIS-11 was 71.5. Fifty-five per cent of the patients had a high level of impulsiveness. No differences were found relating to mood state. Impulsivity was related to Male gender, lower educational level, early age of onset, smoking, alcohol and drug misuse and prior suicide attempts. The treatment of patients with BD should consider to reduce impulsivity to improve morbidity.

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1. Introduction

Impulsivity has been defined as a predisposition toward rapid, unplanned reactions to internal or external stimuli, without regard to the negative consequences (Moeller et al., 2001). Impulsivity is divided into two components: trait impulsivity witch is the component of impulsivity that remains constant at different episodes of the disorder and state impulsivity witch is the changing part due to the state of the disorder (Celikeloglu et al., 2015).

Available findings suggest that in BD, impulsivity is not only state-related (manic or depressive episode), but also a trait component of BD (continued pattern), which could represent a core feature of the illness (Najt et al., 2007; Sierra et al., 2011). Trait impulsivity, as measured by the Barratt Impulsiveness Scale (BIS-11), is increased in bipolar patients comparing to healthy individuals (Peluso et al., 2007; Swann et al., 2008, 2001). It remains elevated even in euthymic patients and does not differ from manic ones (Swann et al., 2003). These findings indicate that the impulsivity found among bipolar patients may be independent of mood state.

This association between impulsivity and bipolar disorder could have different origins: it could be a consequence of repeated mood episodes, a risk factor for the disorder, or a manifestation of an independent factor linked with the biological causes of the disorder.

Each of these possibilities could have important implications for a better understanding of bipolar disorder (Peluso et al., 2007).

Various findings suggest that impulsivity plays an important role in bipolar disorder (BD) (Peluso et al., 2007). It could be associated with numerous potential complications including substantial morbidity, deterioration in the social, family, and employment realms, higher risk of accidents, violence (Hollander and Rosen, 2000), substance abuse (Moeller et al., 2002) suicide (Mahon et al., 2012; Simon et al., 2001; Swann et al., 2005), and some eating behavior disorders (Fernández-Aranda et al., 2006).

In addition, trait impulsivity was associated with a more severe course of illness. Nevertheless, little evidence directly linked impulsivity to those illness-course characteristics of BD (Swann et al., 2009).

In spite of the abundance of literature pertaining impulsivity in BD, it is hard to find studies conducted in Tunisia. The current study aimed to evaluate the level of impulsivity among patients with BD in a Tunisian context and verify its correlation with socio-demographic and clinical characteristics as reported in existing body of literature especially mood state, alcohol misuse and suicide attempts.

2. Methods

2.1. Sample

The sample consisted of 60 patients with bipolar disorder consulting in the psychiatry unit of Sfax during a period of

2 months. They had not been hospitalized for at least 6 months prior to the study. Diagnoses were confirmed by an experienced psychiatrist with using the Structured Clinical Interview for DSM-IV according to the DSM-IV-TR.

2.2. Procedures and measures

The subjects completed a form containing socio-demographic details and clinical variables, the Barratt Impulsiveness Scale (BIS-11) in an Arabic version (Ellouze et al., 2013) and the Mini International Neuropsychiatric Interview "MINI" version 05 to screen for alcohol abuse or dependence. Mood state was assessed with the mood graphic rate scale (MGRS) (Makhlouf et al., 2010).

The "BIS-11" is a questionnaire designed to assess the personality/behavioral construct of impulsiveness. It is the most widely cited instrument for the assessment of impulsiveness (Barratt and Patton, 1983). This 30-items self-rated scale has three oblique factors: *the attentional/cognitive factor*, which measures toleration for cognitive complexity and persistence; *the motor factor*, which measures the tendency to act on the spur of the moment and *the non-planning factor*, which measures the lack of sense of the future. Items are rated from 1 (absent) to 4 (most extreme). Total score ranges from 30 to 120. Score ≥ 72 indicate a high level of impulsiveness.

MGRS is created based on the visual analogical model. It consisted of nine faces showing emotions grading from sadness to extreme joy. Patients were invited to choose the face that corresponds to their best mood in the preceding week. It detected depressive, euthymic and manic mood.

2.3. Statistical analyses

The collected data were analyzed using Statistical Package for Social Sciences SPSS software in its 20th version. Descriptive statistics were computed for all demographic and assessment variables. Associations among demographics, clinical characteristics and impulsivity scores were evaluated using T-tests and analysis of variance (ANOVA) to test differences in means scores of impulsivity between different groups. Correlations were performed by Pearson correlation r. The significance level was set at a probability of $p < 0.05$.

3. Results

3.1. Socio-demographic characteristics

The mean age of patients was 42.3 years. They were female and married in 51.7% of cases. They did not exceed the primary school

Table 1
Socio-demographic variables for the sample.

	n	%
Sex		
Male	29	48.3
Female	31	51.7
Marital status (%)		
Single	20	33.3
Married	31	51.7
Divorced, widowed	9	15
Educational level		
Uneducated	1	1.7
Primary school	31	51.7
College	23	38.3
High school	5	8.3
Employment status		
Active	20	33.3
Unemployed	35	58.3
Retired	4	6.7
Student	1	1.7

Table 2
Scores on the different scales of impulsivity.

Score	Mean	Min–max	Standard derivation
Barratt total	71.5	51–91	11.72
Barratt cognitive	18.83	11–27	4.25
Barratt motor	26.12	16–37	5.28
Barratt non planning	26.45	18–35	4.13

in 53.4% and 58.3% of them were unemployed. Socio-demographic aspects are summarized in Table 1 for both groups.

3.2. Clinical characteristics

The BD was of type I for 45 patients (75%) and of type II for 15 of them (25%). Thirty-two participants (53.3%) were euthymic in the moment of the study, while fifteen of them (25%) had a depressed mood and the thirteen remaining (21.7%) had a manic mood. Twenty-seven patients (45%) are addicted to tobacco, thirteen (21.6%) had alcohol abuse or dependence and five of them (8.3%) had drug abuse. The mean number of relapses was 4.8 (SD = 3.8). Sixteen participants (26.7%) had attempted suicide at least once during the course of illness. The most commonly used means for suicide attempts were: defenestration (40%), hanging (33.3%) and voluntary drug ingestion (13.3%).

3.3. Impulsivity

3.3.1. Scores of impulsivity

The mean score of BIS 11 was 71.5. More than half of the patients (55%) had a high level of impulsiveness. Table 2 summarizes different results on scales of impulsivity.

3.3.2. Factors correlated to impulsivity

Impulsivity (BIS-11 total score) was significantly associated to male gender, lower educational level, early age of onset, smoking, alcohol and drug misuse and prior suicide attempts. Those factors are summarized in Table 3.

Table 3
Factors correlated to impulsivity.

	Mean (SD)	Significance
Sex		
Male	75.73 (10.809)	0.015; $d = 0.733$ (Student's t-test)
Female	67.6 (11.350)	
Educational level		
Uneducated	53	0.037, $F = 3.075$ (ANOVA)
Primary school	74.2 (10.10)	
College	71.63 (11.3)	
High school	59.25 (15.17)	
Tobacco use		
No	78.33 (8.890)	<0.001; $d = 1.216$ (Student's t-test)
Yes	66.18 (10.975)	
Alcohol misuse		
Yes	85.75 (3.654)	<0.001; $d = 2.150$ (Student's t-test)
No	68.65 (10.637)	
Other substance use (%)		
No	87.25 (1.258)	<0.001; $d = 2.162$ (Student's t-test)
Yes	70.06 (11.17)	
Suicide attempts		
Yes	81 (6.633)	<0.001; $d = 1.521$ (Student's t-test)
No	67.18 (10.998)	
Age at onset		0.005; $r =$ (Pearson correlation)
Duration of untreated illness		0.038; $r =$ (Pearson correlation)